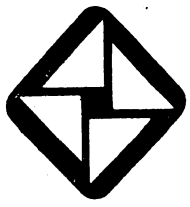


Institute of Computer Management

1100 Superior Ave. • Diamond Shamrock Bldg. Cleveland, Ohio 44114 • Phone (216) 241-3964

PROGRAMMING EXERCISES

PROGRAM NUMBER: AR010

APPLICATION: Customer Name and Address Listing

RECORD FORMAT(S):

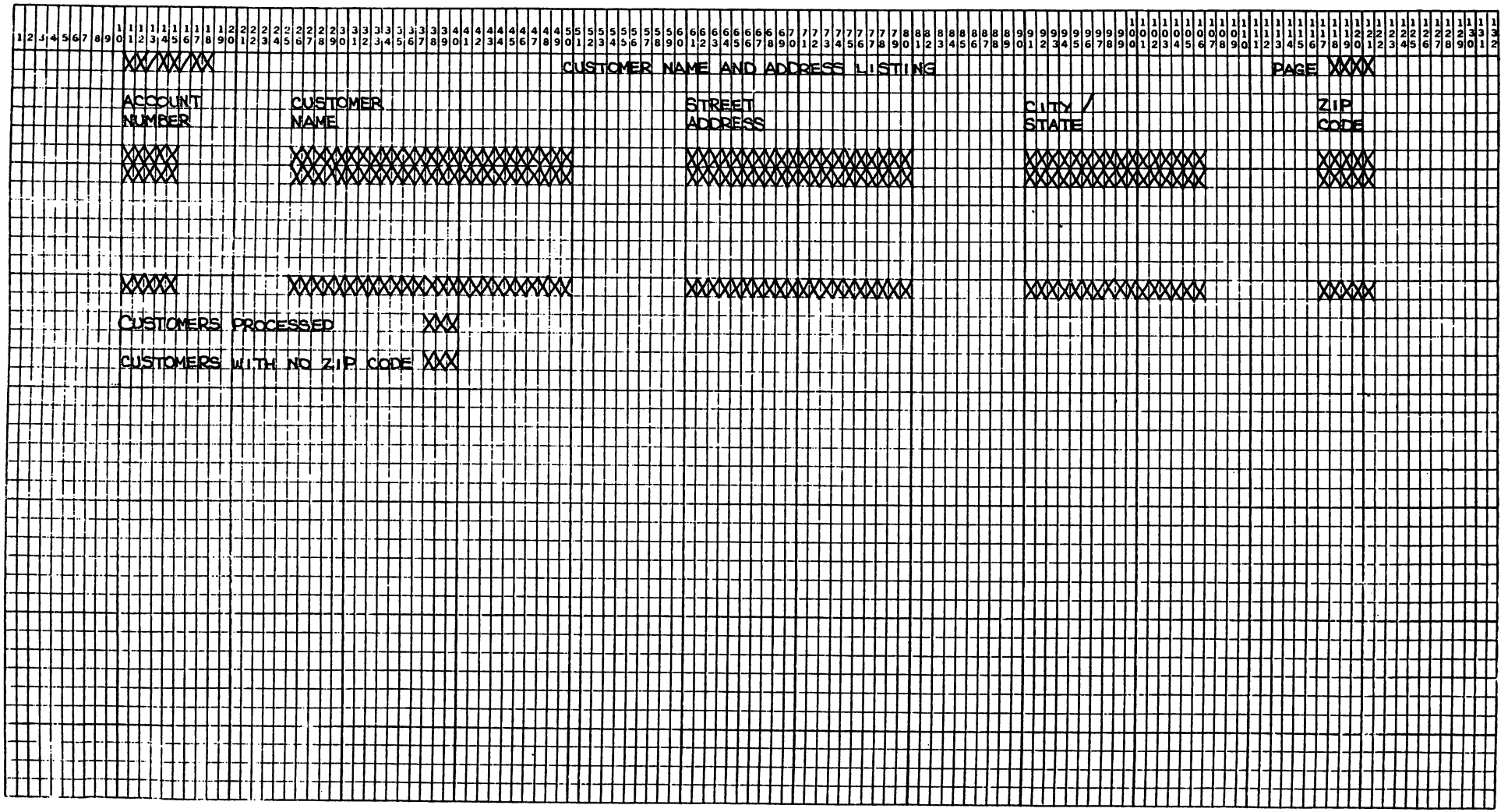
CUSTOMER NAME AND ADDRESS RECORD	USAGE: INPUT
1. Customer	1 - 5
2. State code	6 - 7
3. City code	8 - 10
4. Salesman number	11 - 12
5. Credit class	13 - 13
6. Name	14 - 38
7. Street address	39 - 58
8. City and state	59 - 74
9. Zip code	75 - 79
10. Record code (1)	80 - 80

PROGRAM DESCRIPTION:

1. This program is a simple listing of customer name and address records.
2. The headings should be printed on top of every page.
3. Process only records with valid record codes.
4. The total of customers processed must be kept and printed at end of job.
5. The total of customers without zip codes must be kept and printed at end of job.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: IB020

APPLICATION: Inventory Listing

RECORD FORMAT(S):

INVENTORY RECORD	USAGE: INPUT
1. Blank	1 - 4
2. Stock number	5 - 10
3. Item description	11 - 26
4. Blank	27 - 49
5. Unit cost (2 dec.)	50 - 54
6. Blank	55 - 58
7. Quantity (0 dec.)	59 - 63
8. Blank	64 - 79
9. Record code (3)	80 - 80

PROGRAM DESCRIPTION:

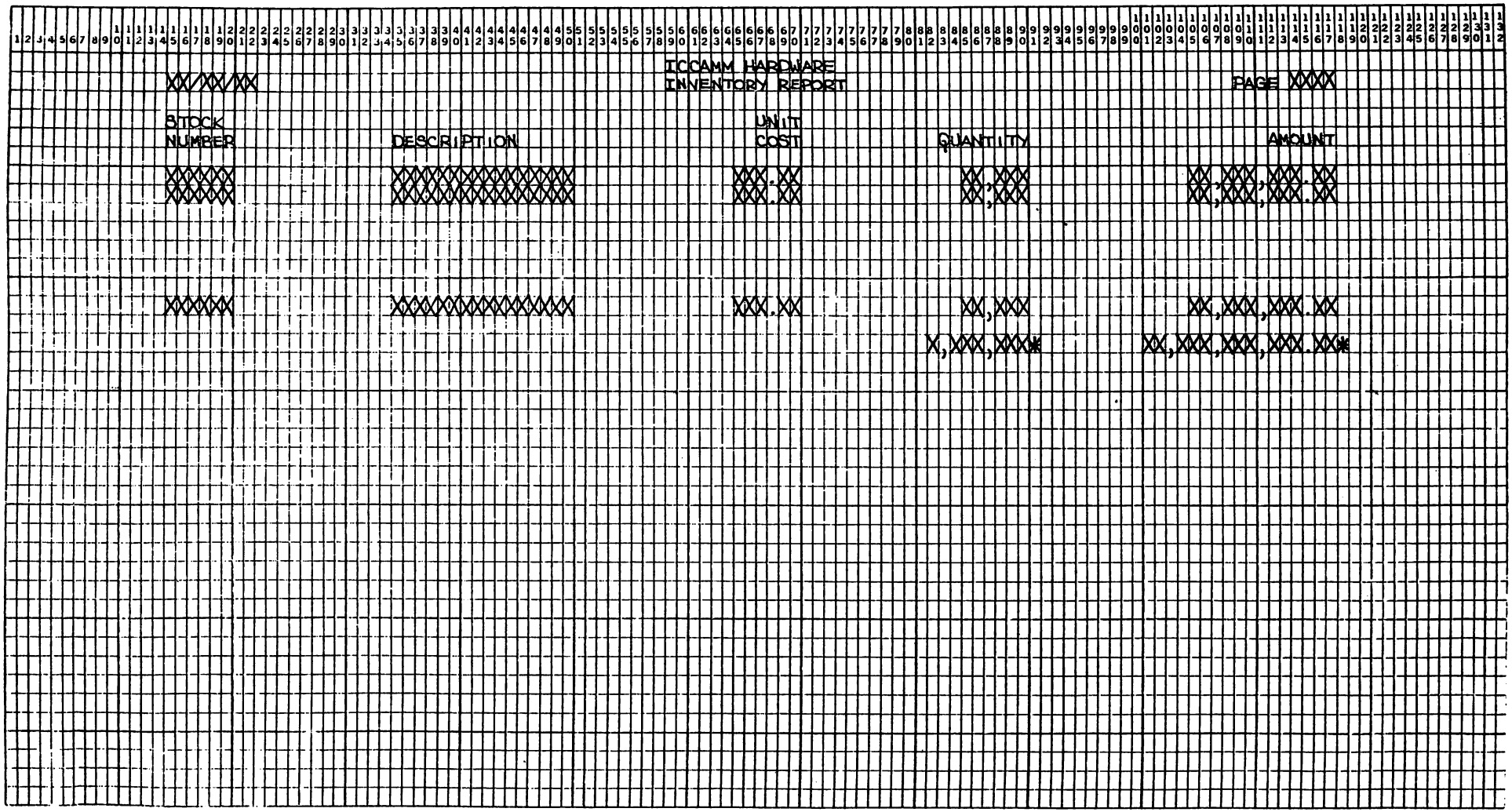
1. This program is a simple listing of inventory records.
2. Print headings on top of every page.
3. Process only records with valid record codes.
4. A sequence check must be done on stock number
5. Amount is calculated by multiplying unit cost by quantity.
6. Totals must be kept for quantity and amount and be printed at EOJ.

PROG. ID. _____

PROGRAMMER _____

PROGRAM TITLE _____

DATE _____



PROGRAM NUMBER: AR030

APPLICATION: Cash Receipts Control Register

RECORD FORMAT(S):

CASH RECEIPT RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Invoice number	6 - 10
3. Cash receipt voucher number	11 - 16
4. Blank	17 - 36
5. Amount paid	37 - 42*
6. Discount allowed	43 - 48
7. Blank	49 - 79
8. Record code (F)	80 - 80

* 11-Overpunch if credit amount

PROGRAM DESCRIPTION:

1. This program is a listing of daily cash receipts.
2. A date card with the current date and the adding machine total for amount paid for that date must be accepted through the card reader.
3. Print headings on the top of every page.
4. Process only records with a valid record code.
5. A sequence check must be done on invoice number within voucher number.
6. Edit negative amount paid with "CR".
7. Totals must be kept for discount allowed and amount paid and printed after processing all records.
8. After all records have been processed, the adding machine total must be compared with the program total. If they agree, print "in balance", otherwise print "out of balance".
9. Check with your instructor for the batch total to be accepted on the date card.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

```
XX/XX/XX          TCCAMM FURNITURE COMPANY                    PAGE XXXX
                  CASH RECEIPTS CONTROL REGISTER

VOUCHER NUMBER    INVOICE NUMBER    CUSTOMER ACCT. NO.    DISCOUNT ALLOWED    AMOUNT PAID

XXXXXX            XXXXX             XXXXX                 X,XXX.XX            X,XXX.XX
XXXXXX            XXXXX             XXXXX                 X,XXX.XX            X,XXX.XXCR

XXXXXX            XXXXX             XXXXX                 X,XXX.XX            X,XXX.XX

                                    TOTALS                XXX,XXX.XX          XXX,XXX.XX

                                    ADDING MACHINE TOTAL                      XXX,XXX.XX

                                    IN BALANCE
```

PROGRAM NUMBER: IB040

APPLICATION: Weekly Production Report

RECORD FORMAT(S):

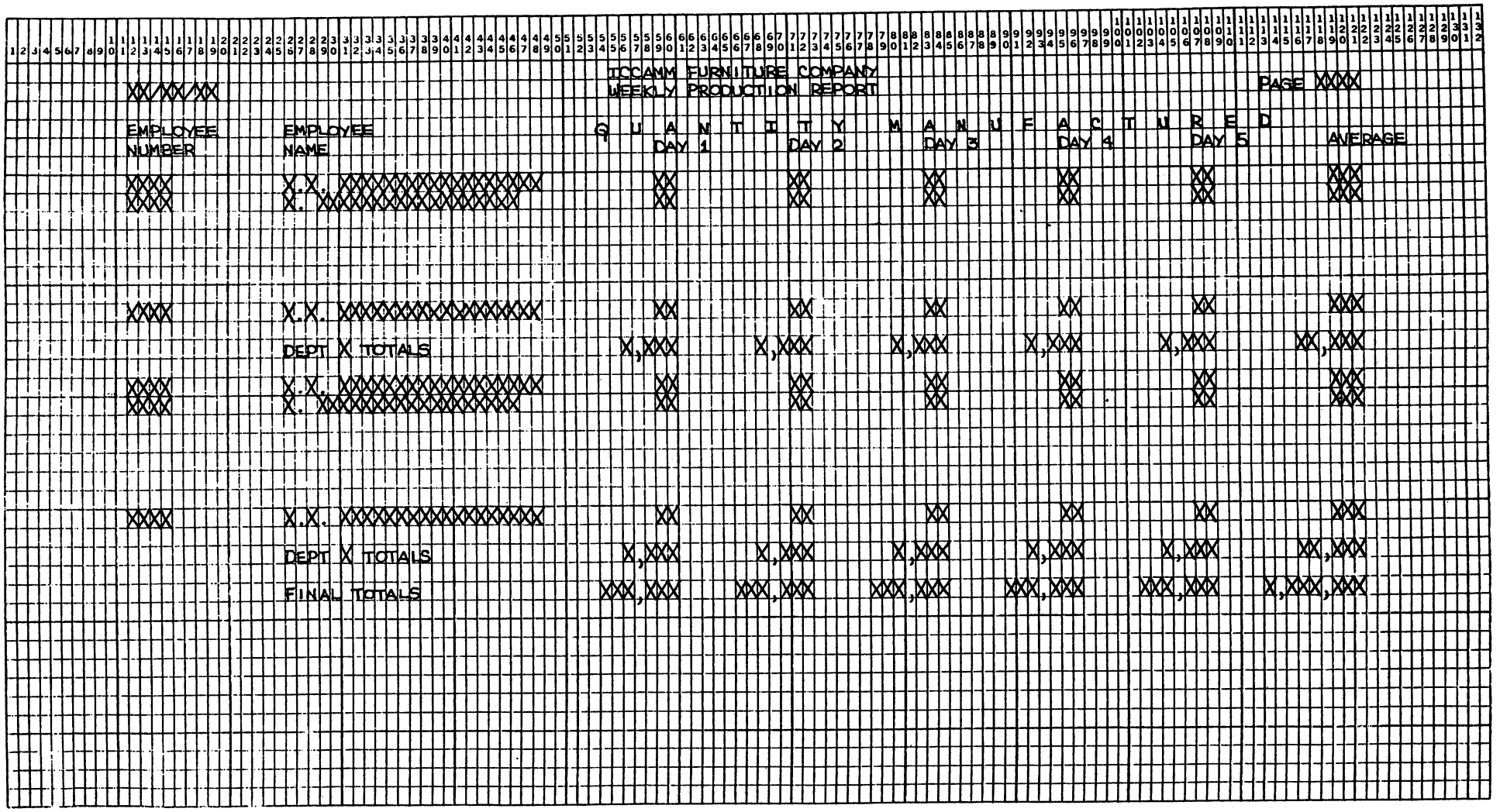
EMPLOYEE PRODUCTION RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number	2 - 5
(Department number pos. 5) Employee I.D. pos. 2 thru 4)	
3. First initial	6 - 6
4. Middle initial	7 - 7
5. Last name	8 - 25
6. Parts manufactured	
Day 1 (0 dec.)	26 - 27
Day 2 (0 dec.)	28 - 29
Day 3 (0 dec.)	30 - 31
Day 4 (0 dec.)	32 - 33
Day 5 (0 dec.)	34 - 35
7. Blank	36 - 79
8. Record code (P)	80 - 80

PROGRAM DESCRIPTION:

1. This program is designed to produce a weekly production report.
2. Daily average = (Day 1 + Day 2 + Day 3 + Day 4 + Day 5) /5.
3. The input file is sequenced on employee number.
   A control break should occur on department number.
4. The following checks must be made:
   Record code;
   Ascending sequence on employee I.D. within department number.
5. Daily totals and average should be printed for each department at control break time. Average =(Total + ... + Total 5) /5.
6. Daily final totals and average should be printed at end of job.
7. Final Average = (Final Total Day 1 + ... + Final Total Day 5) /5.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: PY050

APPLICATION: Hours Report

RECORD FORMAT(S):

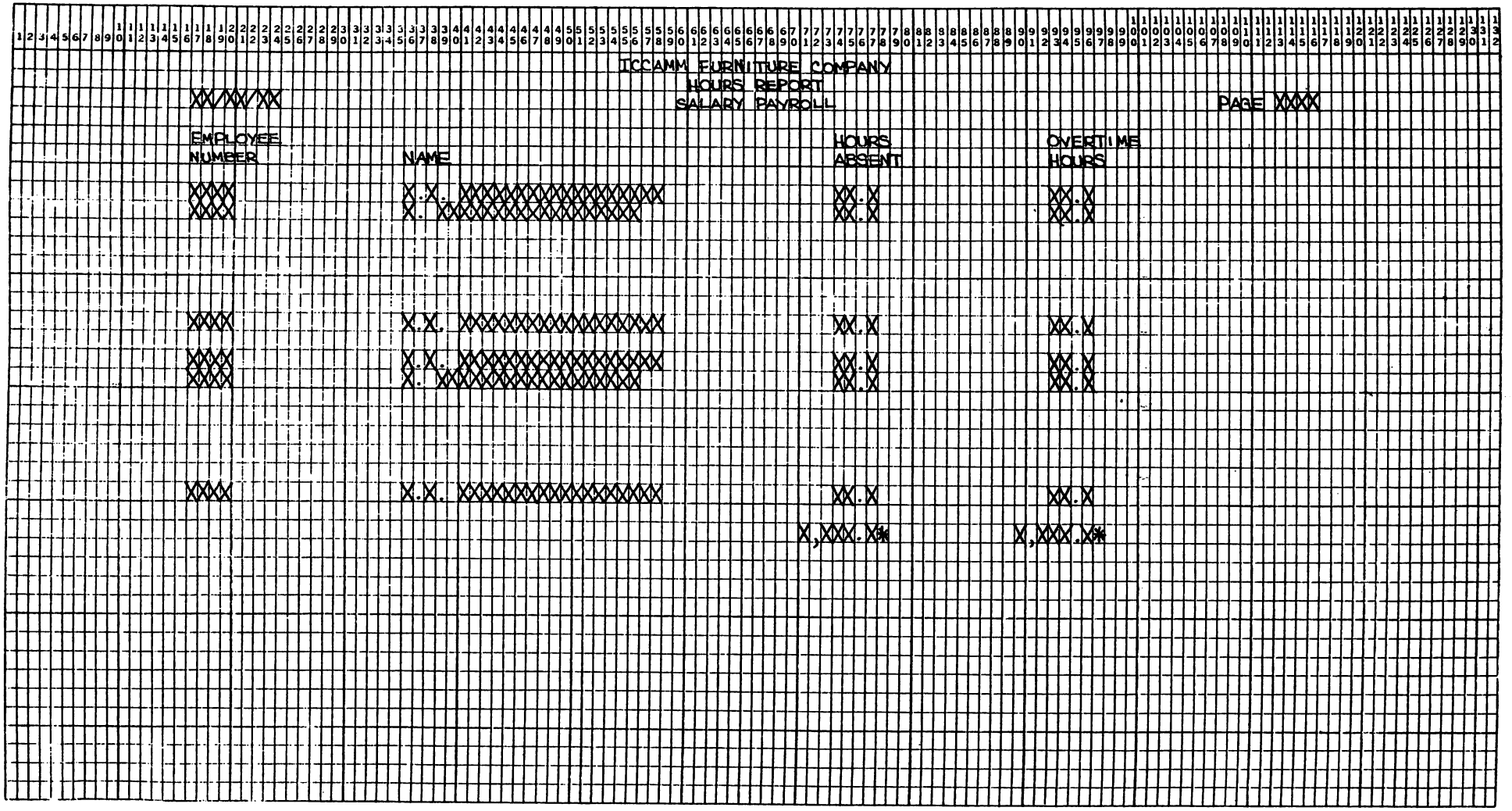
EMPLOYEE TIME RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number and department number (Pos. 5)	2 - 5
3. First initial	6 - 6
4. Middle initial	7 - 7
5. Last name	8 - 25
6. Blank	26 - 34
7. Payroll account number	35 - 37
8. Blank	38 - 40
9. Regular hours (1 dec.)	41 - 43
10. Blank	44 - 44
11. Overtime hours (1 dec.)	45 - 47
12. Blank	48 - 73
13. Date	74 - 79
14. Record code (2)	80 - 80

PROGRAM DESCRIPTION:

1. This program is designed to produce two hour reports.
2. Report #1 lists all employees being paid on an hourly basis.
3. Report #2 lists all employees being paid on a salary basis that have either overtime hours or absent hours.
4. Salary employees have an 11-Overpunch on department number (position 5 of input record) to distinguish them from hourly employees.
5. Salaried employees are grouped at the beginning of the file.
6. The input file is sequenced on employee number and department number.
7. The record should be checked for code and sequence (employee number within department).
8. A control break should occur on department number.
9. The control break consists only of providing a blank line between departments.
10. Grand totals must be kept for all hours fields.

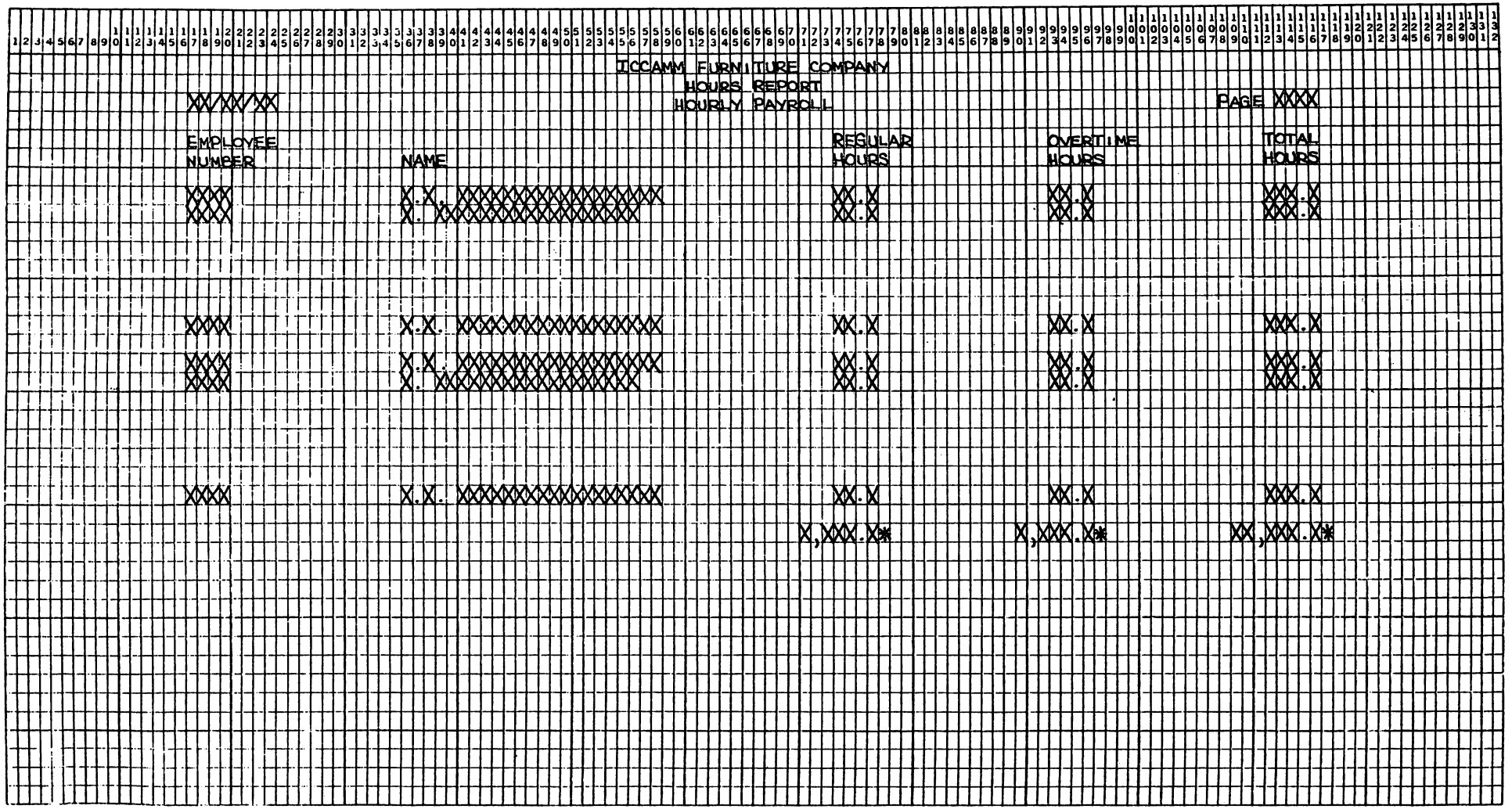
PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: IB060

APPLICATION: Salesman Commission Report

RECORD FORMAT(S):

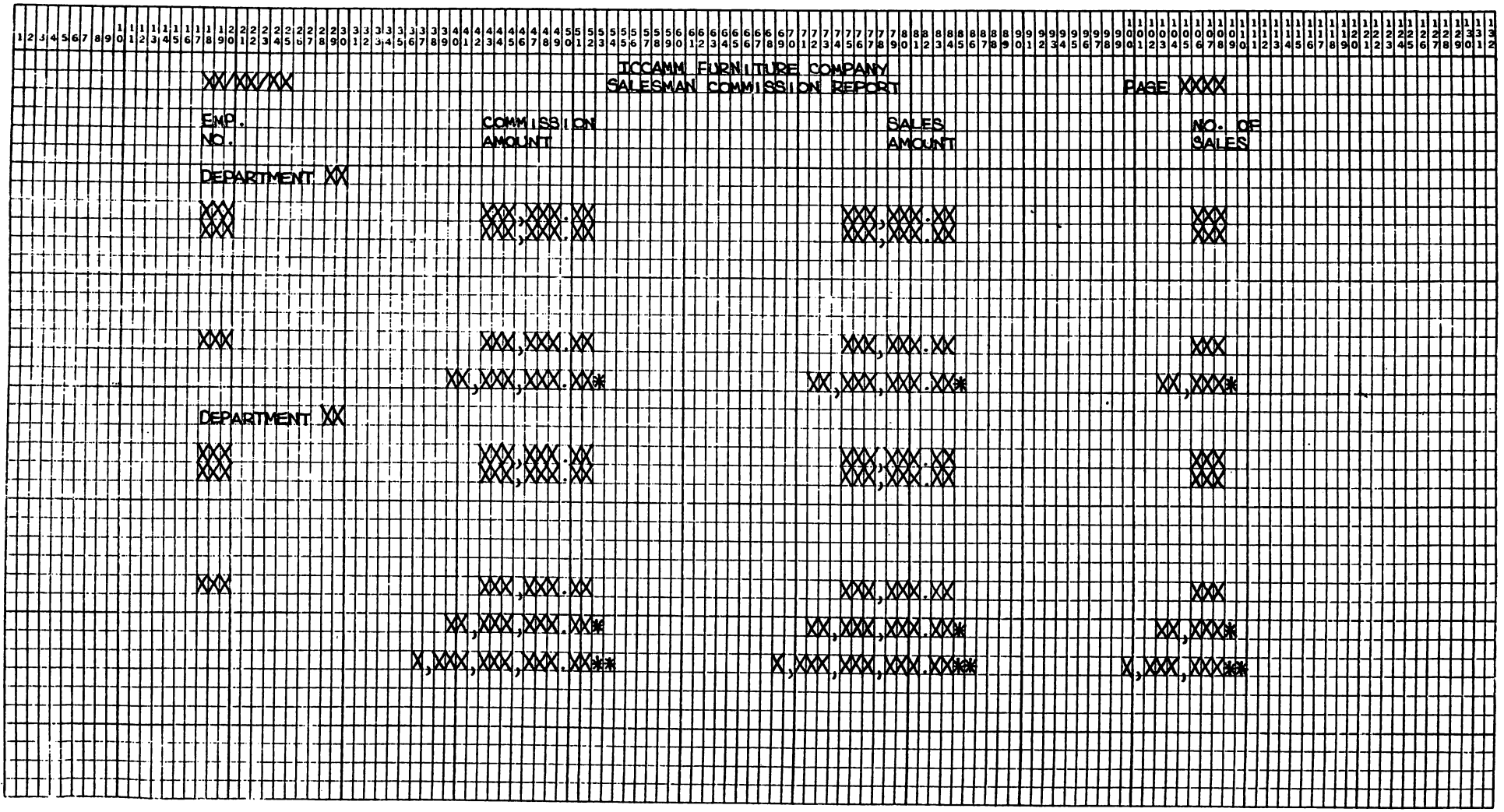
SALESMAN COMMISSION RECORD	USAGE: INPUT
1. Department number	1 - 2
2. Employee number	3 - 5
3. Commission amount	6 - 11
4. Sales amount	12 - 17
5. Blank	18 - 79
6. Record code (3)	80 - 80

PROGRAM DESCRIPTION:

1. This program produces a salesman commission report.
2. The file is to be checked for valid record code and sequence.
3. One line of print is generated per salesman summarizing his performance. (He may have any number of commission records present.)
4. Department totals must be kept and printed.
5. Final totals must be kept and printed.
6. Department number is group indicated.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: IB070

APPLICATION: Exception Report

RECORD FORMAT(S):

SALESMAN RECORD	USAGE: INPUT
1. Employee number (Department number in pos. 1)	1 - 5
2. Salesman name	6 - 25
3. Year to date sales	26 - 32
4. Current monthly sales	33 - 39
5. Blank	40 - 41
6. Months employed	42 - 43
7. Blank	44 - 55
8. Record code (X)	56 - 56
9. Blank	57 - 80

PROGRAM DESCRIPTION:

1. This program is designed to produce an exception report listing all invalid data along with the type(s) of error(s).
2. The sequence for verifying the data will be:
   a. Record code check
      (if found to be invalid no further checks are necessary)
   b. Numeric employee number
   c. Valid employee number
      (Compute the check digit using the following formula:

MOD 11 CHECK DIGIT CALCULATION

EXAMPLE

EMPLOYEE NUMBER:

1	1	1	4	2
x5	x4	x3	x2	x1
5	4	3	8	2

5+4+3+8+2 = 22

22 / 11 = 2 Remainder 0

STEP 1. Multiply each digit of the number by its weighting factor. (Weighting factor is assigned from right to left starting at 1 and increasing by 1 for each digit position).

STEP 2. Add all the products from the preceding step together.

STEP 3. Divide the sum from the previous step by 11 giving an integer quotient.

STEP 4. Multiply the quotient from step 3 by 11 giving an integer product.

STEP 5. Subtract the product of step 4 from the sum of step 2. If the result is zero, the number is correct.

d. Numeric year to date sales
e. Numeric current monthly sales
f. Reasonable current monthly sales (If current monthly sales is greater than year to date sales, it is unreasonable)
g. Numeric months employed

3. Any records found to contain invalid data are printed along with all errors. (Note invalid record exception).
4. Total records processed and total erroneous records must be kept and printed after all records have been processed.

PROG. ID. ______________________ PROGRAMMER ______________________

PROGRAM TITLE ______________________ DATE ______________________

XX/XX/XX

ICCAMM FURNITURE COMPANY

EXCEPTION REPORT

PAGE XXX

ERROR LEGEND:

1. INVALID RECORD CODE
2. EMPLOYEE NUMBER NON-NUMERIC
3. EMPLOYEE NUMBER INVALID
4. EMPLOYEE NAME MISSING
5. YTD SALES NON-NUMERIC
6. CURRENT SALES NON-NUMERIC
7. CURRENT SALES UNREASONABLE
8. MONTHS EMPLOYED NON-NUMERIC

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ERRORS: X X X X X

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ERRORS: X X X X X

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ERRORS: X X X X X

RECORDS PROCESSED: XXX

ERRONEOUS RECORDS: XXX

PROGRAM NUMBER: IB080

APPLICATION: Salesman Quota Report

RECORD FORMAT(S):

SALESMAN RECORD	USAGE: INPUT
1. Employee number	1 - 5
2. Salesman name	6 - 25
3. Year to date sales	26 - 32
4. Current monthly sales	33 - 39
5. Blank	40 - 41
6. Months employed	42 - 43
7. Blank	44 - 55
8. Record code (X)	56 - 56
9. Blank	57 - 80

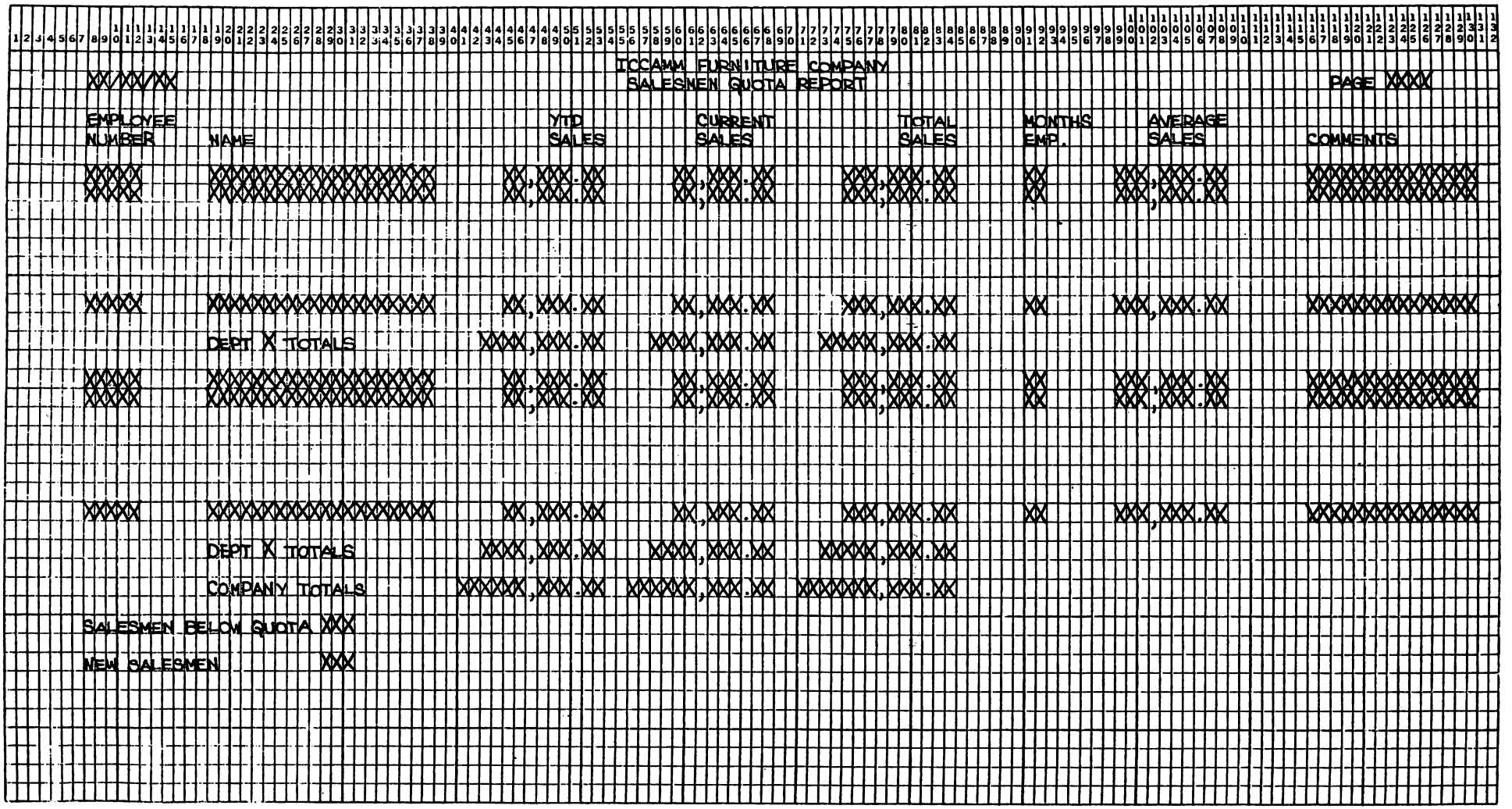
PROGRAM DESCRIPTION:

1. This program is designed to produce a salesman quota report.
2. A date card* with the current date must be accepted through the card reader.
3. A sequence check must be done on salesman number within department number.
4. Accumulate and print subtotals for each department.
5. Accumulate final totals and print after all records have been processed.
6. If months employed equal zero, do not calculate average sales and print "new salesman" under comments.
7. If months employed are greater than the current month (from date card) average sales = total sales/current month, otherwise average sales = total sales/month employed.
8. If average sales are less than 10,000.00, print "below quota" under comments.
9. Totals must be kept for new salesmen and salesmen below quota.
10. Print totals after all records have been processed.

*Check with your instructor for the format.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: IB090

APPLICATION: Physical Inventory Report

RECORD FORMAT(S):

RAW MATERIAL RECORD	USAGE: INPUT
1. Department number	1 - 3
2. Part number	4 - 9
3. Quantity	10 - 13
4. Unit price (4 dec.)	14 - 18
5. Blank	19 - 79
6. Record code (1)	80 - 80

WORK-IN-PROCESS RECORD	USAGE: INPUT
1. Department number	1 - 3
2. Part number	4 - 9
3. Quantity	10 - 13
4. Unit price (3 dec.)	14 - 18
5. Blank	19 - 79
6. Record code (2)	80 - 80

FINISHED GOODS RECORD	USAGE: INPUT
1. Department number	1 - 3
2. Part number	4 - 9
3. Quantity	10 - 13
4. Unit price (2 dec.)	14 - 18
5. Blank	19 - 79
6. Record code (3)	80 - 80

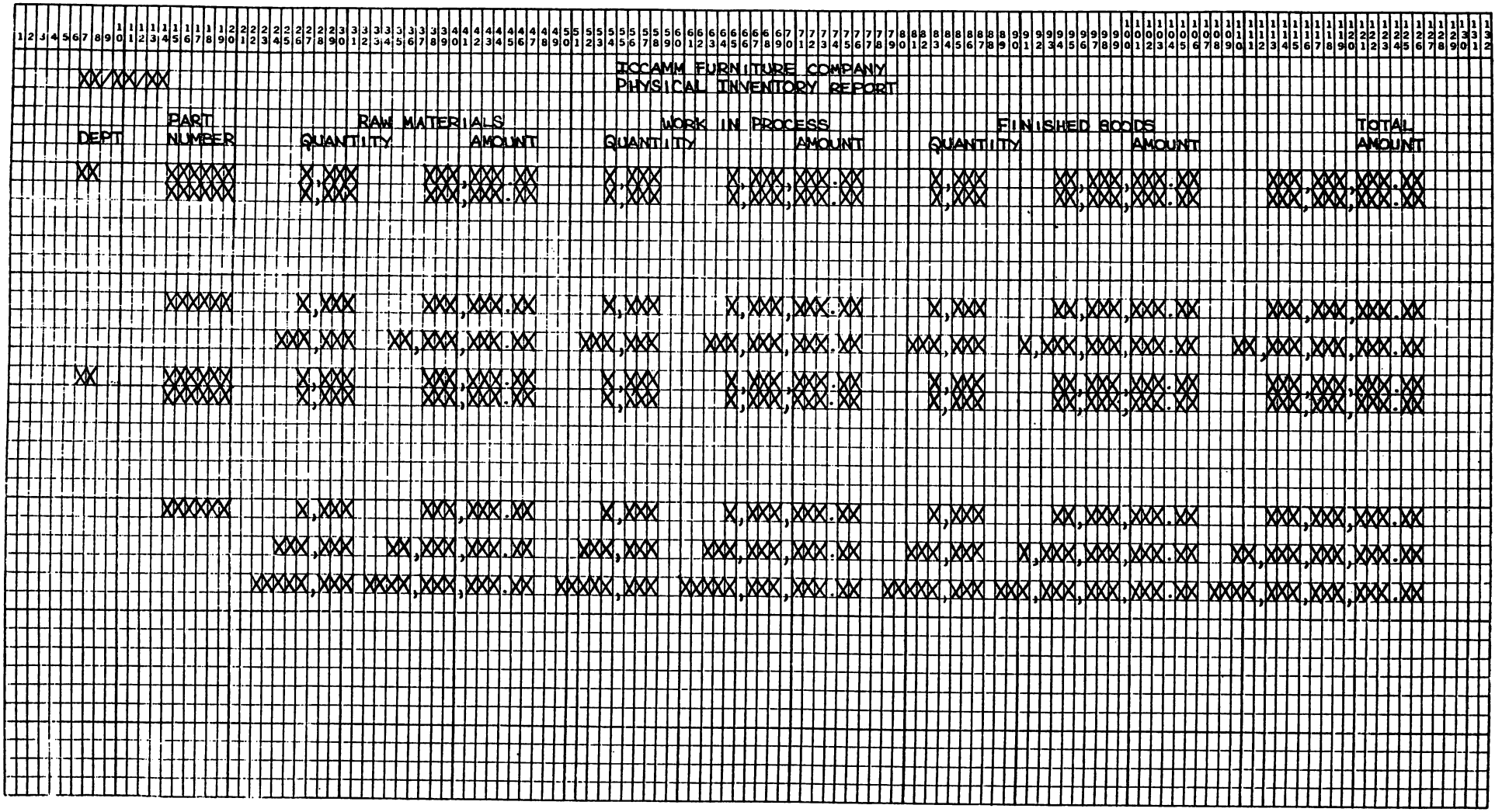
PROGRAM DESCRIPTION:

1. The data has been fully edited and sorted on record type within part number within department number.
2. All record types are optional and any combination of existing record types is permitted (i.e. 1, 2 - 1, 3 - 2, 3 1,2,3)
3. If duplicate record types are detected (i.e. a record code that equals the record code on the preceding record) by-pass all processing for that part and indicate the error.

4. When a part number changes print a line with the summary for that part.
5. When the department number changes, print the totals for that department. Note that the department number is group indicated on the report.
6. After all records have been processed, print final totals.
7. Amount (for all record types) = Quantity X Unit price.
8. Total amount = Raw materials amount + Work in process Amount = finished goods amount.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: IB100

APPLICATION: Daily Sales Report

RECORD FORMAT(S):

STOCK BALANCE RECORD	USAGE: INPUT
1. Blank	1 - 17
2. Stock number	18 - 23
3. Blank	24 - 59
4. Unit cost	60 - 65
5. Unit price	66 - 71
6. Blank	72 - 79
7. Record code (1)	80 - 80

INVENTORY SALES RECORD	USAGE: INPUT
1. Account number	1 - 5
2. Blank	6 - 17
3. Stock number	18 - 23
4. Blank	24 - 61
5. Quantity (sales)	62 - 65
6. Blank	66 - 79
7. Record code (4)	80 - 80

INVENTORY RETURN RECORD	USAGE: INPUT
1. Account number	1 - 5
2. Blank number	6 - 17
3. Stock	18 - 23
4. Blank	24 - 61
5. Quantity (Returns)	62 - 65
6. Blank	66 - 79
7. Record code (5)	80 - 80

PROGRAM DESCRIPTION:

1. The purpose of this program is to maintain daily records of items sold and items returned.
2. Three record types are used:
   - Balance record (1)
   - Sales record (4)
   - Return record (5)

A check must be made verifying only these codes exist.

3. The file is ordered on account number within stock number.
4. A check must be made verifying both stock number and account number are in ascending sequence.
5. There can be any number of sales and return records for any one stock number or no sales and return records for any stock number which should be indicated on the report.
6. There will be only one sale or return record for any one account number.
7. Calculations to be performed on sales and return record:

Total cost	=	Quantity X Unit cost
Total price	=	Quantity X Unit price
Gross profit	=	Total price - Total cost

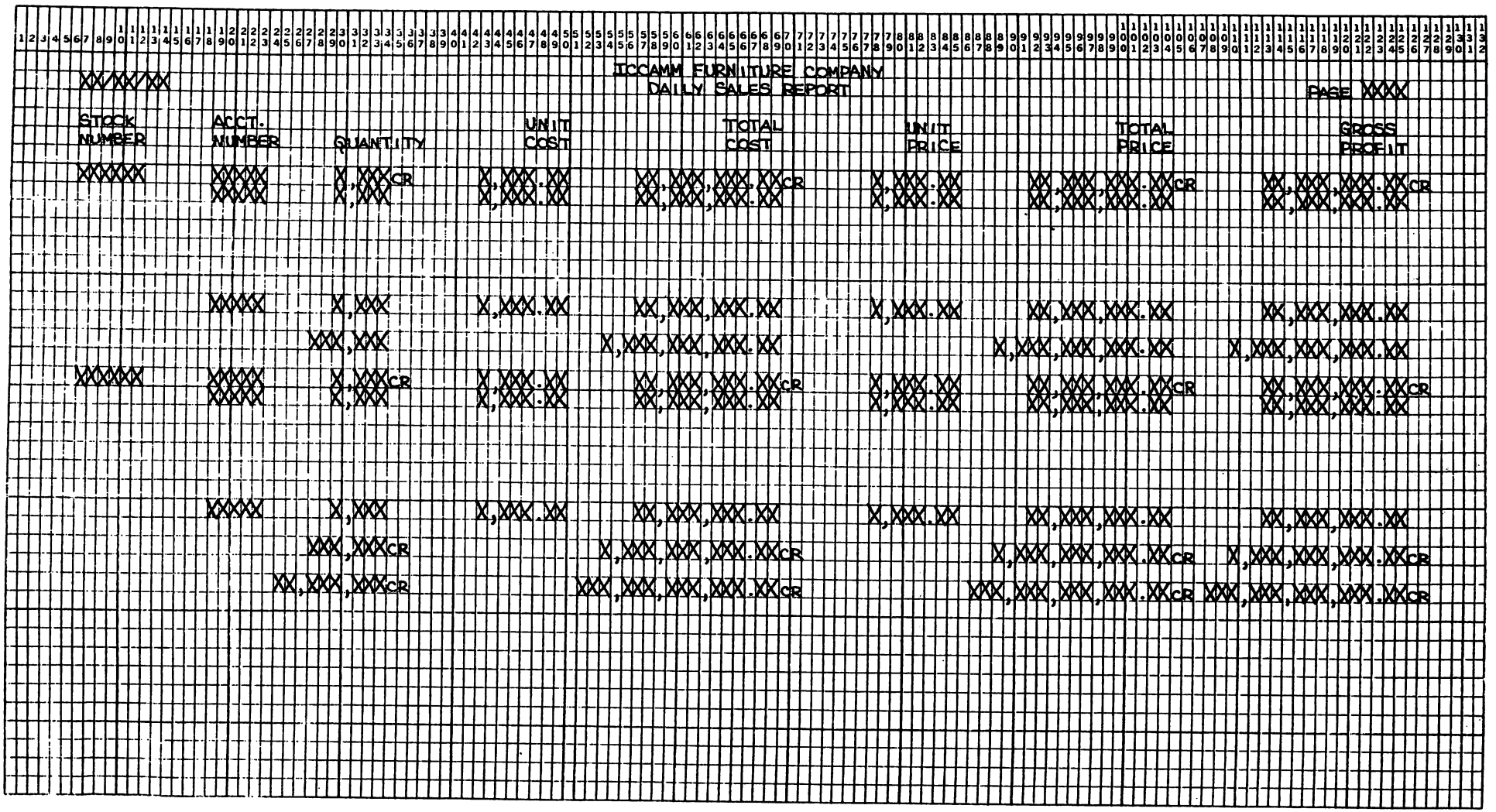
Note: The input quantity for returns comes in with a positive value.

8. Subtotals must be kept and printed for each stock number.
9. Grand totals must be kept and printed at end of job.

Note: Stock number is group indicated

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: PY110

APPLICATION: Gross Pay Report

RECORD FORMAT(S):

EMPLOYEE MASTER RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number (Department number in pos. 5)	2 - 5
3. Employee name (1st and 2nd initials in positions 6 and 7)	6 - 25
4. Social security number	26 - 34
5. Payroll account number	35 - 37
6. Exemptions	38 - 39
7. Hourly rate or monthly salary	40 - 45
8. Sex (M = male, F= female)	46 - 46
9. Marital Status (M = married, S = Single)	47 - 47
10. Date employed	48 - 53
11. Date of last pay rate change	54 - 59
12 Termination date	60 - 65
13. Military status	66 - 66
14. Birth date	67 - 72
15. City code	73 - 75
16. State code	76 - 77
17. Blank	78 - 79
18. Record code (1)	80 - 80

DETAIL TIME RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number (Department number in pos. 5)	2 - 5
3. Employee name	6 - 25
4. Blank	26 - 34
5. Payroll account number	35 - 37
6. Blank	38 - 40
7. Regular hours or hours absent (1 decimal position)	41 - 43
8. Blank	44 - 44
9. Overtime hours	45 - 47
10. Blank	48 - 73
11. Date prepared	74 - 79
12. Record code (2)	80 - 80

PROGRAM DESCRIPTION:

1. The gross pay report is produced as a result of processing two input files (i.e. the employee master file and the detail time file.)
2. The employee master file and the detail time file should contain one record for each employee and both files should be in ascending sequence on employee number. *(A salaried employee will only have a detail record if there are adjustments to the employee's pay.)
3. Account for the possibility of one file ending before the other.
4. A record from each file should be read followed by tests to determine the relationship between the employee number on the records.
5. If the employee numbers are equal, process that employee by:

FOR HOURLY EMPLOYEES

Regular pay = Regular hours X hourly rate

If the employee has overtime hours

Overtime pay = Overtime hours X overtime rate

(Overtime rate = Hourly rate X 1.5)

Gross pay = Regular pay + Overtime pay (if any)

FOR SALARIED EMPLOYEES

1. If the employee has no adjustments: (hours absent or overtime)

   Gross Pay = Monthly Salary / 4 Weeks Per month

2. If the employee has adjustments:

   Annual Earnings = Monthly Salary X 12 Months

   Work Hours Per Year = 254 Work Days X 8 Hours per day

   Hourly Rate = Annual Earnings / Work hours Per year

   Regular Pay = Monthly Salary / 4 Weeks Per month

(For overtime)

Overtime Rate	=	Hourly Rate	X	1.5
Overtime Pay	=	Overtime Hours	X	Overtime Rate
Gross Pay	=	Regular Pay	+	Overtime Pay

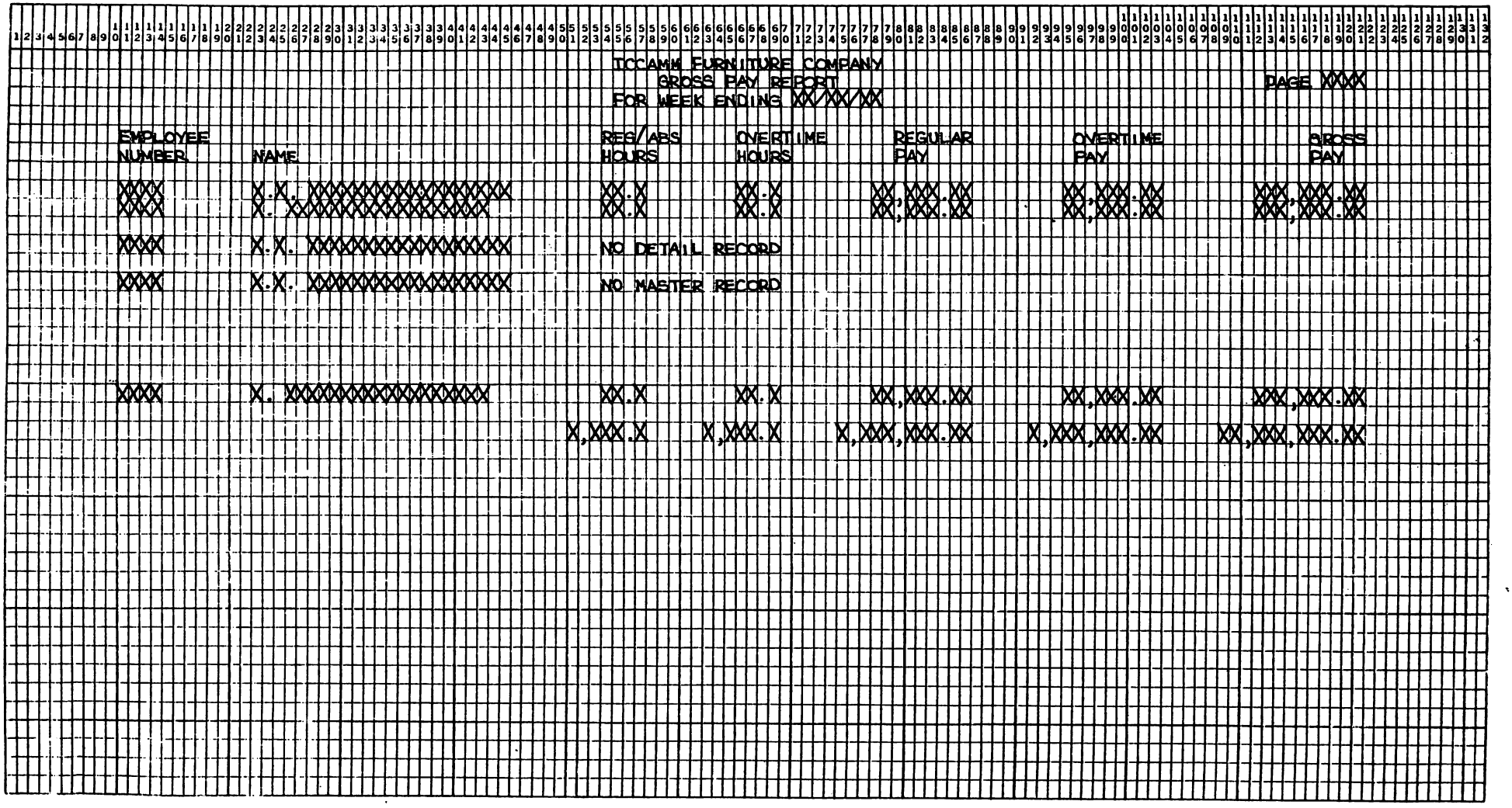
(For hours absent)

Deduction	=	Absent Hours	X	Hourly Rate
Gross Pay	=	Regular Pay	-	Deduction

6. If the employee number in the employee master record is less than the employee number in the detail time record, indicate that there is no detail time record for that employee, then read the next employee master record.
7. If the employee number in the employee master record is greater than the employee number in the detail time record, indicate that there is no employee master record for that employee, then read the next detail time record.
8. Totals must be accumulated and printed after all records in both files have been processed.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: PY120

APPLICATION: Gross Payroll Distribution

RECORD FORMAT(S):

MASTER RECORD		USAGE: INPUT
1.	Blank	1 - 1
2.	Employee number and Department number (Department number in pos. 5)	2 - 5
3.	Employee name (1st and 2nd initials in 6 and 7)	6 - 25
4.	Social security number	26 - 34
5.	Payroll account number	35 - 37
6.	Exemptions	38 - 39
7.	Hourly rate or monthly salary	40 - 45
8.	Sex (M = male, F = female)	46 - 46
9.	Marital status (M = married, S = single)	47 - 47
10.	Date employed	48 - 53
11.	Date of last rate change	54 - 59
12.	Termination date	60 - 65
13.	Military status	66 - 66
14.	Birth date	67 - 72
15.	City code	73 - 75
16.	State code	76 - 77
17.	Blank	78 - 79
18.	Record code (1)	80 - 80

DETAIL RECORD		USAGE: INPUT
1.	Blank	1 - 1
2.	Employee number and Department number (Department number in pos. 5)	2 - 5
3.	Employee name	6 - 25
4.	Blank	26 - 34
5.	Payroll account number	35 - 37
6.	Blank	38 - 40
7.	Regular hours/Hours absent (To tenths of an hour)	41 - 43
8.	Blank	44 - 44
9.	Overtime hours	45 - 57
10.	Blank	48 - 73
11.	Date prepared	74 - 79
12.	Record code (2)	80 - 80

COMMISSION RECORD

USAGE: INPUT

1.	Blank	1 - 1
2.	Employee number and Department number (Department number in pos. 5)	2 - 5
3.	Employee name	6 - 25
4.	Salesman number	26 - 27
5.	Blank	28 - 34
6.	Payroll account number	35 - 37
7.	Blank	38 - 39
8.	Commission amount	40 - 45
9.	Blank	46 - 73
10.	Date prepared	74 - 79
11.	Record code (3)	80 - 80

GROSS PAY RECORD

USAGE: OUTPUT

1.	Blank	1 - 1
2.	Payroll number and Department number (Department number in pos. 5)	2 - 5
3.	Employee name	6 - 25
4.	Social security number	26 - 34
5.	Marital status (M = married, S = single)	35 - 35
6.	Blank	36 - 37
7.	Exemptions	38 - 39
8.	Regular earnings	40 - 42
9.	Overtime hours	43 - 45
10.	Regular earnings	46 - 51
11.	Overtime earnings/Additional earnings	52 - 57
12.	Gross pay	58 - 63
13.	Blank	64 - 70
14.	City code	71 - 73
15.	Date (Pay period)	74 - 79
16.	Record code (4)	80 - 80

GENERAL LEDGER RECORD

USAGE: OUTPUT

1.	Blank	1 - 1
2.	Folio (PY)	2 - 3
3.	Blank	4 - 5
4.	Account number	6 - 8
5.	Pay period date	9 - 14
6.	Account name	15 - 32
7.	Amount	33 - 40
8.	Blank	41 - 73
9.	Date prepared	74 - 79
10.	Record code (G)	80 - 80

PROGRAM DESCRIPTION:

1. This program computes gross pay for each employee from the data on the employee's master record, detail record, and for salesmen, a commission record. Once the gross pay is computed, it is printed on the payroll distribution report according to labor account.
2. Salaried employees can be differentiated from hourly-paid employees by department number. Salaried employees will have an 11-punch over the department number.
3. Hourly-paid employees will have a master record and a detail record. Salaried employees will have a master record; it is possible for them to have detail record indicating that an adjustment of their salary must be made. Only salesmen, who are all salaried employees, can have commission records.
4. Master records can exist for which there are no detail or commission records. This implies one of the following three things:

    a) The record belongs to a salaried employee who is not a salesman and has no adjustments made to his salary.
    b) The record belongs to a hourly-paid employee who has not worked during this pay period or is on vacation. (This may be verified by testing the termination date field for zeroes.)
    c) The record belongs to an employee who has been terminated since the beginning of the fiscal year. (This may be verified by testing the termination date field for a non-zero number.)

5. If the employee is hourly-paid and a master record and matching detail record are present, use the following formulas:

    Regular pay = Regular hours X Hourly rate

    If the employee has overtime hours
    Overtime pay = Overtime hours X Overtime rate
    (Overtime rate = Hourly rate X 1.5)

    Gross pay = Regular pay + Overtime pay

6. If the employee is salaried and has only a master record, use the following formula:

    Gross pay = Monthly salary / 4 Weeks per month

7. If the employee is salaried and has a master record and a detail record, his pay must be adjusted by the following formulas:

    Annual earnings = Monthly salary X 12 Months

    Work hours = 254 Work days X 8 Hours per day
    Per year

Hourly rate = Annual earnings / Work hours per year

Regular pay = Monthly salary / 4 Weeks per month

(For overtime)
Overtime rate = Hourly rate x 1.5
Overtime pay = Overtime hours X Overtime rate
Gross pay = Regular pay + Overtime Pay

(For hours absent)
Deduction = Absent hours X Hourly rate

Gross pay = Regular pay - Deduction

* Note: Hours absent and overtime hours are mutually exclusive

8. Salesmen are salaried employees who have master records and commission records. They may also have detail records if pay adjustments are required.
   Commission amounts are to be included as additional earnings.
   (For a salesman with both overtime pay and commission:
   Additional earnings = Overtime pay + Commission)
9. One line of print is generated and a gross pay record is written for each employee.
10. Totals for each labor account must be kept and printed at end of job. These totals are also punched into general ledger records at end of job.
11. Six payroll labor accounts are currently being used. They are as follows:

Acct nbr	Acct name
825	Direct labor
850	Indirect labor
855	Supervisory salaries
910	Sales salaries
915	Sales commissions
955	Administrative salaries

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

TCCAMM FURNITURE COMPANY
GROSS PAYROLL DISTRIBUTION
FOR PERIOD ENDING XX/XX/XX

EMPLOYEE NUMBER	NAME	DIRECT LABOR	INDIRECT LABOR	SUPERVISORY SALARIES	SALES SALARIES	SALES COMMISSIONS	ADMINISTRATIVE SALARIES	TOTAL GROSS
XXXX	X.X. XXXXXXXXXXXXXXXX	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	00,000.00
XXXX	X. XXXXXXXXXXXXXXXX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	XX,XXX.XX
XXXX	X.X. XXXXXXXXXXXXXXXX	ON VACATION						
XXXX	X.X. XXXXXXXXXXXXXXXX	TERMINATED						
XXXX	X.X. XXXXXXXXXXXXXXXX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	XX,XXX.XX
	DEPT TOTALS	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX
XXXX	X.X. XXXXXXXXXXXXXXXX	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	0,000.00	00,000.00
XXXX	X. XXXXXXXXXXXXXXXX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	XX,XXX.XX
XXXX	X.X. XXXXXXXXXXXXXXXX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	XX,XXX.XX
	DEPT TOTALS	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX
	TOTALS	XXXXX,XXX.XX	XXXXX,XXX.XX	XXXXX,XXX.XX	XXXX,XXX.XX	XXXXX,XXX.XX	XXXXX,XXX.XX	XXXXX,XXX.XX

PROGRAM NUMBER: IB130

APPLICATION: Assets Book Value Listing

RECORD FORMAT(S):

ASSET RECORD	USAGE: INPUT
1. Item description	1 - 25
2. Year purchased	26 - 27
3. Original value	28 - 35
4. Scrap value	36 - 43
5. Blank	44 - 79
6. Record code (A)	80 - 80

PROGRAM DESCRIPTION:

1. This program is designed to determine the current values of the assets of the Iccamm Furniture Company.
2. The current value of the asset is determined as follows:

Age = Current Year - Year Purchased

Use the age to access an internal table containing the percentage of depreciation.

AGE IN YEARS	PERCENT DEPRECIATION
1	20
2	36
3	49
4	59
5	67
6	73
7	79
8	83
9	86
10	89

Depreciation = Original Value X Percent Depreciation

Current Value = Original Value - Depreciation

3. If the current value is less than or equal to the scrap value or the age of the asset exceeds 10 years, print an asterisk next to the current value to indicate the asset has depreciated fully.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

XXXXX ICCAMM FURNITURE COMPANY PAGE XXXX

ASSET DESCRIPTION | PURCHASE DATE | ORIGINAL VALUE | TOTAL DEPRECIATION | CURRENT VALUE | SCRAP VALUE

XXXXXXXXXXXXXXXXXXXX | 19XX | XXX,XXX.XX | XXX,XXX.XX | XXX,XXX.XX* | XXX,XXX.XX

XXXXXXXXXXXXXXXXXXXX | 19XX | XXX,XXX.XX | XXX,XXX.XX | XXX,XXX.XX* | XXX,XXX.XX

PROGRAM NUMBER: AP140

APPLICATION: Regional Income Tax Payable Report

RECORD FORMAT(S):

GROSS PAY RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number	2 - 5
3. Employee name	6 - 25
4. Social security number	26 - 34
5. Marital status	35 - 35
6. Blank	36 - 37
7. Exemptions	38 - 39
8. Regular hours/Hours absent	40 - 42
9. Overtime hours	43 - 45
10. Regular earnings	46 - 51
11 Overtime earnings	52 - 57
12. Gross pay	58 - 63
13. Blank	64 - 70
14. City code	71 - 73
15. Pay date	74 - 79
16. Record code (4)	80 - 80

TAX RATE RECORD	USAGE: INPUT
1. City code	1 - 3
2. City name	4 - 23
3. City tax rate (4 dec.)	24 - 27
4. Blank	28 - 80

PROGRAM DESCRIPTION:

1. This program is designed to show the amount city tax withheld from employees' pay checks and payable to different municipalities.
2. The tax rates for the different municipalities are to be stored in an external table along with the municipality name and code.
3. The procedure for calculating the city taxes is as follows:
   The city code on the Gross Pay Record is used to look up the correct city in the table.
   City Tax = Gross Pay X Corresponding Tax Rate (from table).
4. There may be more than one employee per city, hence the total for each city must be an accumulation of the tax from each employee from that city.
5. There are 45 municipalities to which taxes must be paid.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
REGIONAL INCOME TAX PAYABLE REPORT

MUNICIPALITY	CITY CODE	TAX RATE	TAX PAYABLE
XXXXXXXXXXXXXXXX	XXX	.XXX	X,XXX.XX
			NON-TAXING CITY
XXXXXXXXXXXXXXXX	XXX	.XXX	X,XXX.XX
TOTAL TAX PAYABLE			XXX,XXX.XX

PROGRAM NUMBER: GL150

APPLICATION: Trial Balance

RECORD FORMAT(S):

ACCOUNT RECORD	USAGE: INPUT
1. Account number	1 - 3
2. Account name	4 - 23
3. Balance	24 - 31
4. Blank	32 - 39
5. Account number	40 - 42
6. Account name	43 - 63
7. Balance	64 - 71
8. Blank	72 - 80

TRANSACTION RECORD	USAGE: INPUT
1. Account number	1 - 3
2. Transaction amount	4 - 10
3. Blank	11 - 79
4. Record code	80 - 80
(D) Debit	
(C) Credit	

PROGRAM DESCRIPTION:

1. This program is designed to produce a trial balance of the ledger of the Icaamm Furniture Company.
2. The account records are to be used to build a table that contains account number, account name and balance. The balance on the account record is the year to date balance.
3. The transaction records are current transactions. The account number on the transaction record is used to look up the account's table.
   The record code on the transaction record will determine how the account is to be updated.

Accounts are updated as follows:
Normal balances are indicated by an asterisk (*)

ASSETS		LIABILITIES		OWNER'S CAPITAL	
Debit to increase *	Credit to decrease	Debit to decrease	Credit to increase *	Debit to decrease	Credit to increase *

OWNER'S DRAWING	
Debit to increase *	Credit to decrease

REVENUES	
Debit to decrease	Credit to increase *

EXPENSES	
Debit to increase *	Credit to decrease

The first digit of the account number will determine the type of account.

1.	Asset	values	100	thru	399
2.	Liability	values	400	thru	599
3.	Capital	values	600	thru	605
4.	Drawing	values	606	thru	610
5.	Revenue	values	700	thru	799
6.	Expense	values	800	thru	999

A negative account balance is indicated by an 11-Overpunch.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

CCAMM FURNITURE COMPANY
TRIAL BALANCE

ACCOUNT	ACCT. NO.	DEBIT BALANCES	CREDIT BALANCES
XXXXXXXXXXXXXXXXXX	XXX	XXX,XXX.XX	XXX,XXX.XX
XXXXXXXXXXXXXXXXXX	XXX	XXX,XXX.XX	
TOTALS		XX,XXX,XXX.XX	XX,XXX,XXX.XX

PROGRAM NUMBER: IB160

APPLICATION: Shipping Report

RECORD FORMAT(S):

NAME & ADDRESS RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Blank	6 - 13
3. Customer Name	14 - 38
4. Street Address	39 - 58
5. City and State	59 - 74
6. Zip Code	75 - 79
7. Record Code (1)	80 - 80

ITEM RECORD	USAGE: INPUT
1. Customer number	1 - 5
2. Stock number	6 - 11
3. Item description	12 - 31
4. Quantity purchased	32 - 34
5. Unit price	35 - 40
6. Unit weight	41 - 43
7. Shipping zone	44 - 44
8. Blank	45 - 79
9. Record Code (2)	80 - 80

RATE RECORD	USAGE: INPUT
1. Max weight	1 - 4
2. Rate zone 1	5 - 9
3. Rate zone 2	10 - 14
4. Rate zone 3	15 - 19
5. Blank	20 - 80

PROGRAM DESCRIPTION:

1. This program is used to produce a shipping report for the customers of the Iccamm Furniture Company.
2. The data to produce the reports will come from two record types:
   a) The name and address record will provide the data for the report headings.
   b) The item record will provide the data for the itemized shipping report.

3. The report for each customer should begin on a new page. If end of page is reached during the itemized report for a customer, headings should be produced on a new page.
4. On the itemized portion of the report
   Extended Price = Unit Price X Quantity Purchased.
5. A total of extended prices for all items purchased by a customer must be kept.
6. A total weight of all items purchased must be kept in order to determine shipping charges.
   Total weight (1 item) = Unit Weight X Quantity Purchased.
7. Shipping charges will be based on 2 factors:
   Total weight of items purchased
   Shipping zone
8. The shipping charge will be accessed by using the following double dimension table:

WEIGHT	ZONE		
	1	2	3
4451-7200#	720.00	790.00	860.00
2751-4450#	445.00	500.00	570.00
1791-2750#	275.00	320.00	380.00
1051-1700#	170.00	210.00	260.00
651-1050#	105.00	130.00	150.00
401-650#	65.00	80.00	100.00
251-400#	40.00	50.00	65.00
151-250#	22.00	27.00	40.00
101-150#	15.00	18.00	27.00
51-100#	10.00	12.00	18.00
0-50#	5.00	6.00	9.00

9. Manifest Total = Total Extended Price + Shipping Charges

PROG. ID. ______________________ PROGRAMMER ______________________

PROGRAM TITLE ______________________ DATE ______________________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 XX/XX/XX                    ICCAMM FURNITURE COMPANY
                              SHIPPING MANIFEST                  PAGE XXX

 SHIP TO:  XXXXXXXXXXXXXXXXXXXXXXXXX
           XXXXXXXXXXXXXXXXXXXXXXXXX
           XXXXXXXXXXXXXXXX  XXXXX



 STOCK                                     UNIT          UNIT           EXTENDED
 NUMBER    DESCRIPTION               QUAN   WT           PRICE          PRICE

 XXXXX     XXXXXXXXXXXXXXXXXXXX      XXX    XXX        X,XXX.XX      X,XXX,XXX.XX
 XXXXX     XXXXXXXXXXXXXXXXXXXX      XXX    XXX        X,XXX.XX      X,XXX,XXX.XX



 XXXXX     XXXXXXXXXXXXXXXXXXXX      XXX    XXX        X,XXX.XX      X,XXX,XXX.XX

           TOTALS                       XX,XXX                     XXX,XXX,XXX.XX

           SHIPPING CHARGES                                              XX,XXX.XX

           MANIFEST TOTAL                                        X,XXX,XXX,XXX.XX
```

PROGRAM NUMBER: IB170

APPLICATION: Stock Status

RECORD FORMAT(S):

MASTER RECORD	USAGE: INPUT
1. Stock number	1 - 6
2. Item description	7 - 26
3. Location	27 - 31
4. Unit weight	32 - 34
5. Unit measure	35 - 37
6. Opening balance	38 - 41
7. Returns (cumulative)	42 - 45
8. Receipts (cumulative)	46 - 49
9. Issues (cumulative)	50 - 53
10. On hand	54 - 57
11. On/Back order	58 - 61
12. Order point	62 - 65
13. Unit cost	66 - 71
14. Blank	72 - 73
15. Date last updated	74 - 79
16. Record code (7)	80 - 80

PROGRAM DESCRIPTION:

1. This program will list the entire master inventory file.
2. Two reports are produced; one for raw materials, one for finished goods (all finished goods will follow all raw materials).
3. All items of stock that need to be ordered will be indicated on this report by an asterisk by the stock number. An item needs to be ordered if On Hand + On/Back order is less than of equal to the order point.
4. For finished goods, the total cost of goods sold must be calculated and printed after all records have been processed. Cost of goods sold = ((opening balance + receipts) - On Hand) X Unit Cost.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
STOCK STATUS REPORT XX/XX/XX
RAW MATERIALS INVENTORY AND SUPPLIES PAGE XXXX

STOCK NUMBER	DESCRIPTION	WAREHOUSE LOCATION	UNIT MEAS	UNIT WGT	DATE LAST ACT	OPEN BAL	PUR RET	REC	ISSUE	ON HAND	ON ORDER	AMOUNT AVAIL.	ORDER POINT
XXXXXX	XXXXXXXXXXXXXXXXXX	X-X-X-XX	XXX	XXX	XX/XX/XX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX
		X-X-X-XX		XXX		X,XXX	X,XXX	X,XXX					
XXXXXX	XXXXXXXXXXXXXXXXXX	X-X-X-XX	XXX	XXX	XX/XX/XX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX
	TOTALS					XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
STOCK STATUS REPORT XX/XX/XX
FINISHED GOODS INVENTORY

PAGE XXXX

STOCK NUMBER	DESCRIPTION	WAREHOUSE LOCATION	UNIT MEAS	UNIT WGT	DATE LAST ACT	OPEN BAL	SALES RET	REC	ISSUE	ON HAND	BACK ORDER	AMOUNT AVAIL.	ORDER POINT
XXXXX	XXXXXXXXXXXXXXXXXX	X-X-X-XX	XXX	XXX	XX/XX/XX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX
	TOTALS					XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX	XXX,XXX
	COST OF GOODS SOLD	XX,XXX,XXX.XX											

PROGRAM NUMBER: IB180

APPLICATION: Update of Raw Materials Inventory

RECORD FORMAT(S):

MASTER RECORD	USAGE: INPUT/OUTPUT
1. Stock Number	1 - 6
2. Item Description	7 - 26
3. Location (whse or stock room)	27 - 31
4. Unit Weight	32 - 34
5. Unit Measure	35 - 37
6. Opening Balance	38 - 41
7. Returns (cumulative)	42 - 45
8. Receipts (cumulative)	46 - 49
9. Issues (cumulative)	50 - 53
10. On Hand	54 - 57
11. On Back Order	58 - 61
12. Order Point	62 - 65
13. Unit Cost (2 dec.)	66 - 71
14. Blank	72 - 73
15. Date Last Updated	74 - 79
16. Record Code (7)	80 - 80

PURCHASE RECEIPT (RAW MATERIALS)	USAGE: INPUT
1. Vendor Number	1 - 5
2. Purchase Order Number	6 - 10
3. Vendor Item Number	11 - 15
4. Stock Number	16 - 21
5. Location	22 - 26
6. Quantity	27 - 30
7. Unit Cost (2 dec.)	31 - 36
8. Description	37 - 56
9. Blank	57 - 79
10. Record Code (2)	80 - 80

PROGRAM DESCRIPTION:

1. The function of this program is to update the Master Inventory File and produce a report listing all updated master records.

2. The Master Inventory File is an indexed-sequential file keyed on stock number.

3. The Daily Transaction File will be used to update the Master Inventory File. This file has been edited and sorted on record code within stock number.

4. A master record should be read only once for a group of daily transaction records (i.e. daily transaction records with the same stock number).

5. If there is no Master Inventory Record for a Daily Transaction Record, indicate the error on the report and bypass any subsequent Daily Transaction Records with the same stock number.

6. The update of the Master Inventory Record is as follows:

   A. If quantity received in Daily Transaction Record is greater than the amount on back order in Master Inventory Record, indicate the error on the report and bypass processing for that record.

   B. Add quantity in Daily Transaction Record to purchase receipts in Master Inventory Record.

   C. Add quantity in Daily Transaction Record to on hand in Master Inventory Record.

   D. Subtract quantity in Daily Transaction Record from on back order in Master Inventory Record.

   E. Change date last updated in Master Inventory Record to the current date.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
STOCK UPDATE REPORT XX/XX/XX
RAW MATERIALS INVENTORY AND SUPPLIES PAGE XXXX

STOCK NUMBER	STOCK DESCRIPTION	OPENING BALANCE	BACK ORDERS	PURCHASE RECEIPTS	PURCHASE RETURNS	MATERIAL ISSUED	ON HAND
XXXXXX	XXXXXXXXXXXXXXXXXXXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX
XXXXXX	XXXXXXXXXXXXXXXXXXXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX
XXXXXX	XXX MASTER RECORD NOT FOUND - ALL TRANSACTIONS BYPASSED XXX						
XXXXXX	XXX PURCHASE RECEIPT LARGER THAN ON ORDER - TRANSACTION BYPASSED XXX						
XXXXXX	XXXXXXXXXXXXXXXXXXXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX

PROGRAM NUMBER: IB190

APPLICATION: Update of Finished Goods Inventory

RECORD FORMAT(S):

MASTER RECORD	USAGE: INPUT/OUTPUT
1. Stock number	1 - 6
2. Item description	7 - 26
3. Location	27 - 31
4. Unit weight	32 - 34
5. Unit measure	35 - 37
6. Opening balance	38 - 41
7. Returns (cumulative)	42 - 45
8. Receipts (cumulative)	46 - 49
9. Issues (cumulative)	50 - 53
10. On hand	54 - 57
11. On/back order	58 - 61
12. Order point	62 - 65
13. Unit cost	66 - 71
14. Blank	72 - 73
15. Date last updated	74 - 79
16. Record code (7)	80 - 80

FINISHED RECEIPTS	USAGE: INPUT
1. Job order no.	1 - 5
2. Department number	6 - 7
3. Blank	8 - 17
4. Stock no.	18 - 23
5. Warehouse location	24 - 28
6. Blank	29 - 33
7. Quantity	34 - 37
8. Unit cost	38 - 43
9. Description	44 - 63
10. Blank	64 - 79
11. Record code (1)	80 - 80

SALES RETURNS	USAGE: INPUT
1. Customer account number	1 - 5
2. Journal voucher number	6 - 10
3. Customer order number	11 - 15
4. Salesman number	16 - 17
5. Stock number	18 - 23
6. Warehouse location	24 - 28
7. Invoice number	29 - 33
8. Quantity	34 - 37
9. Unit cost	38 - 43
10. Description	44 - 63
11. Blank	64 - 79
12. Record code (2)	80 - 80

SALES BACK-ORDER:	USAGE: INPUT
1. Customer account number	1 - 5
2. Sales voucher number	6 - 10
3. Customer order number	11 - 15
4. Salesman number	16 - 17
5. Stock number	18 - 23
6. Warehouse location	24 - 28
7. Invoice number	29 - 33
8. Quantity	34 - 37
9. Unit cost	38 - 43
10. Description	44 - 63
11. Blank	64 - 79
12. Record code (3)	80 - 80

SALES ITEM	USAGE: INPUT
1. Customer account number	1 - 5
2. Sales voucher number	6 - 10
3. Customer order number	11 - 15
4. Salesman number	16 - 17
5. Stock number	18 - 23
6. Warehouse location	24 - 28
7. Invoice number	29 - 33
8. Quantity	34 - 37
9. Unit cost	38 - 43
10. Description	44 - 63
11. Blank	64 - 79
12. Record code (4)	80 - 80

PROGRAM DESCRIPTION:

1. The function of this program is to update the Master Inventory File, determine whether or not an order for merchandise can be satisfied and produce a report listing updated master records.
2. The Master Inventory File is an indexed-sequential file keyed on stock number.
3. The Daily Transaction File will be used to update the Master Inventory File.
   A) There are 4 record types in the Daily Transaction File, all of which are optional.
   B) There can be multiple records for any type.
   C) The Daily Transaction File has been edited and sorted on record code within stock number.
4. The Satisfied Sales File will contain all sales back-orders and sales items that were satisfied during the run.
5. The Unsatisfied Sales File will contain all sales back-orders and sales items that were not satisfied during the run.

6. A master record should be read only once for a group of daily transaction records (i.e. daily transaction records with the same stock number).
7. If there is no master inventory record for a daily transaction record, indicate the error on the report and by-pass any subsequent daily transaction records with the same stock number.
8. For both satisfied and unsatisfied sales, a duplicate of the record should be written into the file where it belongs.
9. The update of the master inventory record is as follows:
   A) Finished Receipts.
      a) Add finished receipts in daily transaction record to finished receipts in master inventory record.**
      b) Add finished receipts in daily transaction record to on hand in master inventory record.**
      c) If unit cost in daily transaction record is not equal to unit cost in master inventory record, the unit cost must be recalculated. See formula for calculating new unit cost.
   B) Sales Returns.
      a) If sales return in daily transaction record is greater than material issued in master inventory record, indicate the error on the report and by-pass processing.
      b) Add sales returns in daily transaction record to sales returns in master inventory record.**
      c) Add sales returns in daily transaction record to on hand in master inventory record.**
      d) Subtract sales returns in daily transaction record from material issued in master inventory record.
      e) If unit cost in daily transaction is not equal to the unit cost in master inventory record, the unit cost must be recalculated. See formula for calculating new unit cost.
   C) Back Orders.
      a) If back orders in daily transaction record are greater than back orders in master inventory record, indicate the error on the report and by-pass processing.
      b) If back orders are less than or equal to on hand in master inventory record:
         1) Add back orders in daily transaction record to material issued in master inventory record.**
         2) Subtract back orders in daily transaction record from back orders in master inventory record.
         3) Subtract back orders in daily transaction record from on hand in master inventory record.
         4) Write the daily transaction record into the satisfied sales file.

c) If back orders in daily transaction record are greater than on hand in master inventory record:
   1) Write the daily transaction record into the unsatisfied sales file.

D) Sales Items.
   a) If sales items in daily transaction record are less than or equal to on hand in master inventory record:
      1) Add sales items in daily transaction record to issues in master inventory record.**
      2) Subtract sales items in daily transaction record from on hand in master inventory record.
      3) Write the daily transaction record into the Satisfied Sales File.
   b) If sales items in daily transaction record are greater than on hand in master inventory record:
      1) Add sales items in daily transaction record to back orders in master inventory record.**
      2) Change the record code to indicate a back order.
      3) Write the daily transaction record into the Unsatisfied Sales File.

FORMULA FOR CALCULATING NEW UNIT COST

Total cost of units on hand = On hand in master inventory record X Unit cost in master inventory record.

Total cost of units received/returned = Received/returned in daily transaction record X Unit cost in daily transaction record.

Total cost of all units = Total cost of units on hand + Total cost of units received/returned.

Total cost = On hand in master inventory record + Returns/receipts in daily transaction record.

New unit cost = Total cost of all units/total units.**

Indicate that a change in unit cost has been calculated by printing asterisks next to the stock number.

** If a size error should result, indicate the error on the report, do not update the master inventory record, and by-pass subsequent processing for that record.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
STOCK UPDATE REPORT XX/XX/XX
FINISHED GOODS INVENTORY

PAGE XXXX

	STOCK NUMBER	STOCK DESCRIPTION	OPENING BALANCE	SALES ORDERS	FINISHED RECEIPTS	SALES RETURNS	MATERIAL ISSUED	ON HAND
**	XXXXX	XXXXXXXXXXXXXXXXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX

XXXXX *** MASTER RECORD NOT FOUND - ALL TRANSACTIONS BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN FINISHED RECEIPT WAS ADDED TO CUMULATIVE RECEIPTS - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN SALES RETURN WAS ADDED TO CUMULATIVE RETURNS - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN SALES BACK ORDER WAS ADDED TO CUMULATIVE ISSUED - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN SALES ITEM WAS ADDED TO CUMULATIVE ISSUED - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN FINISHED RECEIPT WAS ADDED TO ON HAND - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN SALES RETURN WAS ADDED TO ON HAND - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN SALES ITEM WAS ADDED TO CUMULATIVE ORDERS - TRANSACTION BY-PASSED

XXXXX *** SIZE ERROR RESULTED WHEN CALCULATING NEW UNIT COST - TRANSACTION BY-PASSED

XXXXX *** SALES RETURN LARGER THAN MATERIAL ISSUED - TRANSACTION BY-PASSED

XXXXX *** SALES BACK ORDER LARGER THAN BACK ORDERS - TRANSACTION BY-PASSED

XXXXX	XXXXXXXXXXXXXXXXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX	X,XXX

PROGRAM NUMBER: AP200

APPLICATION: Update of Master File

RECORD FORMAT(S):

MASTER RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. State code	6 - 7
3. City code	8 - 10
4. Salesman number	11 - 12
5. Credit class	13 - 13
6. Customer name	14 - 38
7. Street address	39 - 58
8. City and state	59 - 74
9. Zip code	75 - 79
10. Record code (1)	80 - 80

CORRECTION RECORD	USAGE: INPUT
1. Customer account number	1 - 5
* 2. State code	6 - 7
* 3. City code	8 - 10
* 4. Salesman number	11 - 12
* 5. Credit class	13 - 13
* 6. Name	14 - 38
* 7. Street address	39 - 58
* 8. City and state	59 - 74
* 9. Zip code	75 - 79
10. Record code A (addition) B (change) C (delete)	80 - 80

* Field does not appear if record code is C

NEW MASTER RECORD	USAGE: OUTPUT
1. Customer account number	1 - 5
2. State code	6 - 7
3. City code	8 - 10
4. Salesman number	11 - 12
5. Credit class	13 - 13
6. Name	14 - 38
7. Street address	39 - 58
8. City and state	59 - 74
9. Zip code	75 - 79
10. Record code (1)	80 - 80

PROGRAM DESCRIPTION:

1. This program will simulate a magnetic tape update.

2. The updating is done as a result of processing a correction file against the old master file.

3. Both the correction file and the old master file are in ascending sequence on customer account number.

4. There will be only one correction record per customer, if any at all.

5. If the end of the correction file is reached before the end of the master file, write the remaining master records.

6. If the end of the master file is reached before the end of the correction file, the only type of correction permitted will be an addition . Changes and deletions will be errors.

7. Keep totals for corrections and print after all records have been processed.

	ADDITIONS	CORRECTION	DELETION
Customer number of record in correction file is less than customer number in master file.	Write record from correction file. Read next record from correction file.	Error-record not on file. Read next record from correction file.	Error-record not on file. Read next record from correction file.
Customer number of record in correction file is equal to customer number of record in master file.	Error-record already on file. Read next record from correction file.	Write record from correction file. Read next record from master file. Read next record from correction file.	Read next record from master file. Read next record from correction file.
Customer number of record in correction file is greater than customer number of record in master file.	Write record from master file. Read next record from master file.	Write record from master file. Read next record from master file.	Write record from master file. Read next record from master file.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

ICCAMM FURNITURE COMPANY
CUSTOMER MASTER FILE
CORRECTION REPORT

PAGE XXXX

ACCOUNT NUMBER	TYPE OF CORRECTION	STATUS	NAME	STREET ADDRESS	CITY / STATE	ZIP CODE	STATE CODE	CITY CODE	SMN NBR	CREDIT CLASS
XXXX	CHANGE	NEW	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	XXXXX	XX	XXX	XX	X
		OLD	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	XXXXX	XX	XXX	XX	X
XXXX	ADDITION		XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	XXXXX	XX	XXX	XX	X
XXXX	DELETION									
XXXX	ADDITION		CUSTOMER ALREADY IN FILE							
XXXX	CHANGE		CUSTOMER NOT FOUND IN FILE							
XXXX	DELETION		CUSTOMER NOT FOUND IN FILE							
XXXX	CHANGE	NEW	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	XXXXX	XX	XXX	XX	X
		OLD								

TOTALS: ADDITIONS XXX
DELETIONS XXX
CHANGES XXX

PROGRAM NUMBER: PY210

APPLICATION: Payroll Register

RECORD FORMAT(S):

GROSS PAY RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number (Dept. # pos. 5)	2 - 5
3. Employee name	6 - 25
4. Social security number	26 - 34
5. Marital status	35 - 35
6. Blank	36 - 37
7. Exemptions	38 - 39
8. Regular hours	40 - 42
9. Overtime hours	43 - 45
10. Regular earnings	46 - 51
11. Overtime earnings	52 - 57
12. Gross pay	58 - 63
13. Blank	64 - 70
14. City code	71 - 73
15. Date	74 - 79
16. Identifying code (4)	80 - 80

YEAR-TO-DATE EARNINGS RECORD	USAGE: INPUT
1. Blank	1 - 1
2. Employee number (Dept. # pos. 5)	2 - 5
3. Employee name	6 - 25
4. Social security number	26 - 34
5. Date updated	35 - 40
6. Blank	41 - 41
7. Year to date gross pay	42 - 48
8. Year to date withholding tax	49 - 54
9. Year to date FICA tax	55 - 59
10. Year to date city tax	60 - 64
11. Year to date net pay	65 - 71
12. Quarterly gross pay to date	72 - 79
13. Record code (5)	80 - 80

CHECK RECORD	USAGE: OUTPUT
1. Blank	1 - 1
2. Employee number	2 - 5
3. Employee name	6 - 25
4. Check number	26 - 30
5. Check amount	31 - 36
6. Regular hours	37 - 39
7. Overtime hours	40 - 42
8. Regular earnings	43 - 48
9. Additional earnings	49 - 54
10. Current gross	55 - 60
11. Current withholding	61 - 65
12. Current FICA	66 - 69
13. Current city tax	70 - 73
14. Pay date	74 - 79
15. Record code	80 - 80

GENERAL LEDGER RECORD	USAGE: OUTPUT
1. Blank	1 - 1
2. Folio	2 - 3
3. Blank	4 - 5
4. Account number	6 - 8
5. Pay date	9 - 14
6. Account name	15 - 32
7. Amount	33 - 40
8. Blank	41 - 73
9. Date prepared	74 - 79
10. Record code (G)	80 - 80

ACCOUNTS PAYABLE ITEM RECORD	USAGE: OUTPUT
1. Record code (8)	1 - 1
2. Vendor number	2 - 5
3. Blank	6 - 30
4. Amount	31 - 38
5. Blank	39 - 42
6. Due date	43 - 48
7. Blank	49 - 53
8. General ledger account number	54 - 56
9. Vendor name	57 - 74
10. Entry date	75 - 80

PROGRAM DESCRIPTION:

1. This program is designed to produce the payroll register for the Iccamm Furniture Company.
2. The payroll register is to be divided into 2 reports:
   One for hourly employees and one for salaried employees.

3. The input file used to produce the reports contains 2 record types, both of which are mandatory.
   a) Gross Pay Record - Contains payroll data for the current pay period.
   b) Year to Date Earnings Record - Contains payroll data for all payroll periods to the current period.

   The input file is sequenced on employee number with department number.

   Salaried employees have an 11-overpunch on department number distinguishing them from hourly employees.

4. Current gross pay comes directly from the gross pay record. This field is used to update the year to date gross field.
5. Current FICA Tax is calculated as follows:
   If year to date gross is greater than $17,700:
   Current FICA Tax = 0.
   If (year to date gross + Current gross) is less than or equal to 17,700:
   Current FICA Tax = .0605 X Current gross
   If year to date gross is less than 17,700 and (Year to date gross + Current gross) is greater than 17,700:
   Taxable Wages = 17,700 - Year to date gross
   Current FICA Tax = .0605 X Taxable wages

*6. Current city tax = Current gross X .01.
*7. Regular and overtime hours come directly from the gross pay record.
*8. Current Withholding Tax is taken from the following table.

If marital status is 'S' and current gross is less than $34, the employee has no Federal Withholding Tax deducted for this pay period; otherwise use Table A to calculate his tax.

If marital status is 'M' and current gross is less than $62, the employee has no Federal Withholding Tax deducted for this pay period; otherwise use Table B to calculate his tax.

Table A

Single person - including head of household:

If the amount of wages is		The amount of income tax to be withheld shall be:			
Over	But not over				Of excess over
33	76			15%	$ 33
76	143	$ 6.60	plus	18%	$ 76
143	182	$ 27.84	plus	22%	$143
182	220	$ 39.94	plus	24%	$182
220	297	$ 59.19	plus	28%	$220
297	355	$ 80.75	plus	32%	$297
355	---	$105.39	plus	36%	$355

Table B

Married person

If the amount of wages is		The amount of income tax to be withheld shall be:		
Over	But not over			Of excess over
61	105		15%	$ 61
105	223	$ 6.60 plus	18%	$105
223	278	$27.84 plus	22%	$223
278	355	$39.94 plus	25%	$278
355	432	$59.19 plus	28%	$355
432	509	$80.75 plus	32%	$432
509	---	$105.39 plus	36%	$509

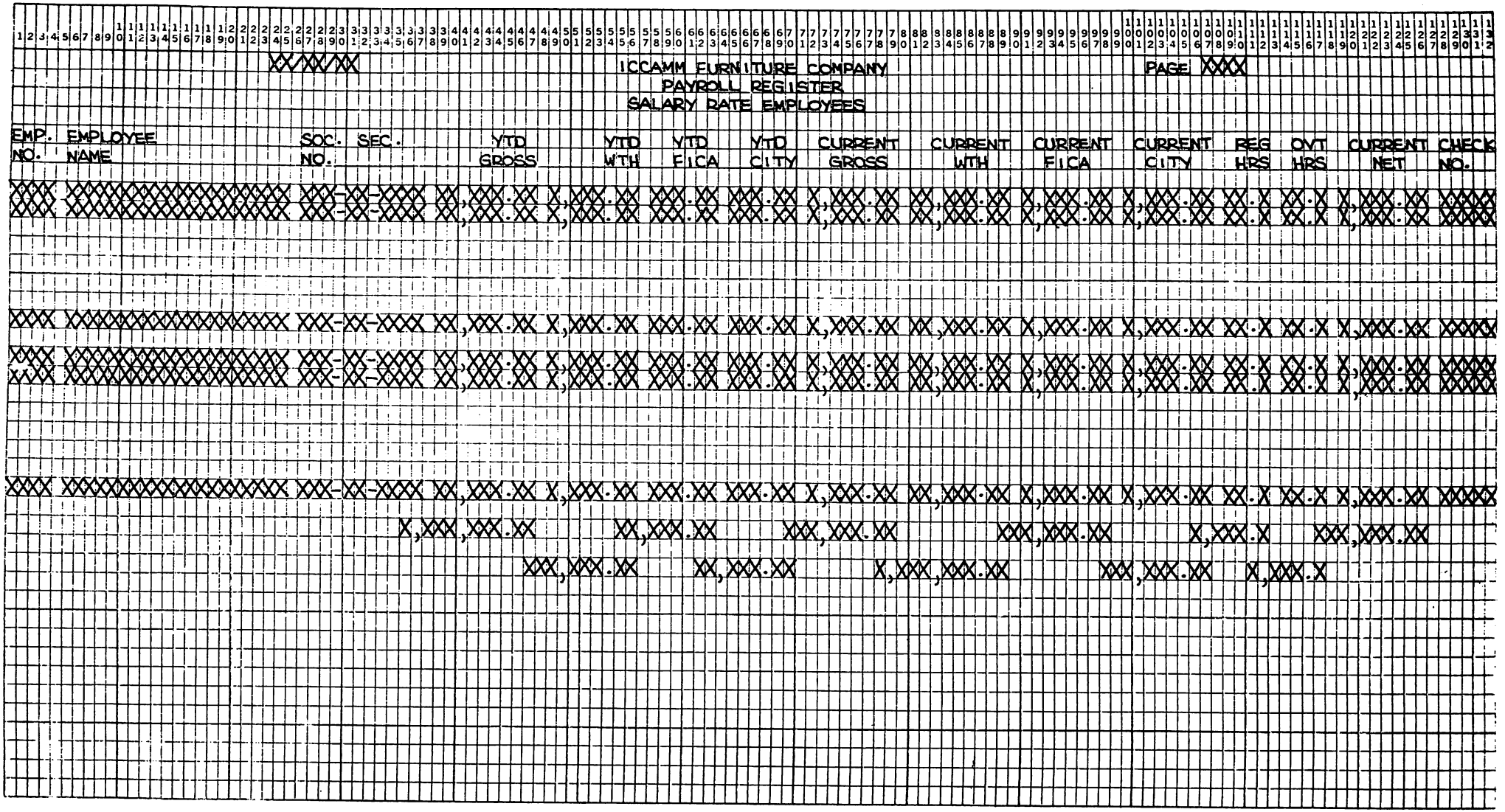
* All current taxes must be used to update the year to date tax fields.

A check record must be punched for every employee.

9. All of the total tax amounts which are payable, must be punched into accounts payable item record. In addition to the tax amount withheld from employees, calculations must be done to arrive at the tax amounts for which the company is liable.
10. The company is required to pay an FICA amount equal to the FICA amount withheld from the employees. This amount is punched into an A/P Record for account 467 FICA Taxes Payable.
11. The Federal Unemployment Tax (FUTA) amount is 3.5% of the first $6,000.00 earned by each employee. This amount is punched into an A/P Record for account 468 FUTA Taxes Payable.
12. The State Unemployment Compensation (SUC) Tax percentage varies by status and company size. We use 2.7% of the first $6,000.00 earned by each employee. This amount is punched into an A/P Record for account 470 SUC Taxes Payable.
13. The total tax withheld from the employee is punched into an A/P Record for account 466 Employees Income Taxes Payable.
14. The City Tax withheld from the employees is punched into an A/P Record for account 480 City Wage Taxes Payable.
15. The total amount of taxes imposed on the employees (FICA + FUTA + SUC) is punched into a G/L Record for account 960 Employer's Payroll Tax Expense.
16. The total net amount of the employee's pay (Gross pay - Total deductions) is punched into an A/P Record for account 490 Net Payroll Payable.
17. The total Current gross is punched into a G/L Record for account 695 Payroll Expense.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM NUMBER: AR220

APPLICATION: Accounts Receivable Credit Summary

RECORD FORMAT(S):

CREDIT MEMO RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Invoice number	6 - 10
3. Salesman number	11 - 12
4. Customer order number	13 - 17
5. Blank	18 - 23
6. Journal voucher number	24 - 29
7. Blank	30 - 30
8. Invoice date	31 - 36
9. Blank	37 - 60
10. Credit return amount	61 - 66
11. Blank	67 - 79
12. Record Code (C)	80 - 80

CASH RECEIPT RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Invoice number	6 - 10
3. Blank	11 - 30
4. Date paid	31 - 36
5. Amount paid	37 - 42 *
6. Blank	43 - 79
7. Record code (F)	80 - 80

* 11-Overpunch indicates previous over-payment

CREDIT SUMMARY RECORD	USAGE: OUTPUT
1. Customer account number	1 - 5
2. Credit return amount	6 - 13
3. Amount paid	14 - 21
4. Previous overpayment	22 - 29
5. Blank	30 - 79
6. Record code (8)	80 - 80

PROG. ID. ______________________ PROGRAMMER ______________________

PROGRAM TITLE ______________________ DATE ______________________

```
                       XX/XX/XX                       ICCAMM FURNITURE COMPANY                       PAGE XXXX
                                                          PAYROLL REGISTER
                                                       HOURLY RATE EMPLOYEES

EMP. EMPLOYEE             SOC. SEC.        YTD       YTD   YTD    YTD   CURRENT   CURRENT  CURRENT  CURRENT  REG  OVT  CURRENT CHECK
NO.  NAME                 NO.          GROSS      WTH   FICA   CITY   GROSS      WTH     FICA     CITY    HRS  HRS    NET   NO.

XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX
XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX






XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX

XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX
XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX






XXX  XXXXXXXXXXXXXXXXXXXX XXX-XX-XXXX XX,XXX.XX X,XXX.XX XXX.XX XXX.XX X,XXX.XX XX,XXX.XX X,XXX.XX X,XXX.XX XX.X XX.X X,XXX.XX XXXXX

                                   X,XXX,XXX.XX       XX,XXX.XX      XXX,XXX.XX         XXX,XXX.XX       X,XXX.X    XXX,XXX.XX

                                              XXX,XXX.XX     XX,XXX.XX       X,XXX,XXX.XX        XXX,XXX.XX   X,XXX.X
```

GL - ACCOUNTS RECEIVABLE	USAGE: OUTPUT
1. Blank	1 - 1
2. Folio (CR)	2 - 3
3. Blank	4 - 5
4. GL account number	6 - 8
5. Blank	9 - 14
6. Account name	15 - 32
7. Amount	33 - 42
8. Blank	43 - 73
9. Date	74 - 79
10. Record code (G)	80 - 80

GL - GENERAL CASH ACCOUNT	USAGE: OUTPUT
1. Blank	1 - 1
2. Folio (DB)	2 - 3
3. Blank	4 - 5
4. GL account number	6 - 8
5. Blank	9 - 14
6. Account name	15 - 32
7. Amount	33 - 42
8. Blank	43 - 73
9. Date	74 - 79
10. Record code (G)	80 - 80

PROGRAM DESCRIPTION:

1. This program produces a summary of accounts receivable credits resulting from either cash receipts, merchandise returned, or cash overpayments.
2. The input file is sequenced on account number and contains 2 record types. A record coded with a 'F' will contain
   a) a cash receipt if the amount field is positive
   b) a previous cash overpayment if the amount field is negative

   A record coded with a 'C' will contain the amount of merchandise returned.
3. Each customer can have any number of 'C' and 'F' records.

4. Total cash receipts, previous overpayments, merchandise returned and accounts receivable credits must be kept for each customer.

   Output is to consist of 1 printed line and one credit summary record (written in a disk file); for each customer.

5. Grand totals must be kept for credit returns, i.e. merchandise returned/AR credits, cash receipts, and overpayments.
6. At end of job, a general cash account record must be punched showing total cash receipts and an accounts receivable record must be punched showing total accounts receivable credits.

   General Ledger Account #110 General Cash Account (Debit)
   General Ledger Account #121 Accounts Receivable (Credit)

PROGRAM NUMBER: AR230

APPLICATION: Customer Activity Report

RECORD FORMAT(S):

CREDIT SUMMARY RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Credit return amount	6 - 13
3. Amount paid	14 - 21
4. Previous over-payment	22 - 29
5. Blank	30 - 79
6. Record code (8)	80 - 80

ACCOUNTS RECEIVABLE OPEN RECORD	USAGE: INPUT
1. Customer account number	1 - 5
2. Invoice number	6 - 10
3. Salesman number	11 - 12
4. Customer name	13 - 30
5. Invoice date	31 - 36
6. A/R invoice amount	37 - 42 *
7. Blank	43 - 48
8. Amount to be paid	49 - 54
9. Blank	55 - 79
10. Record code (9)	80 - 80

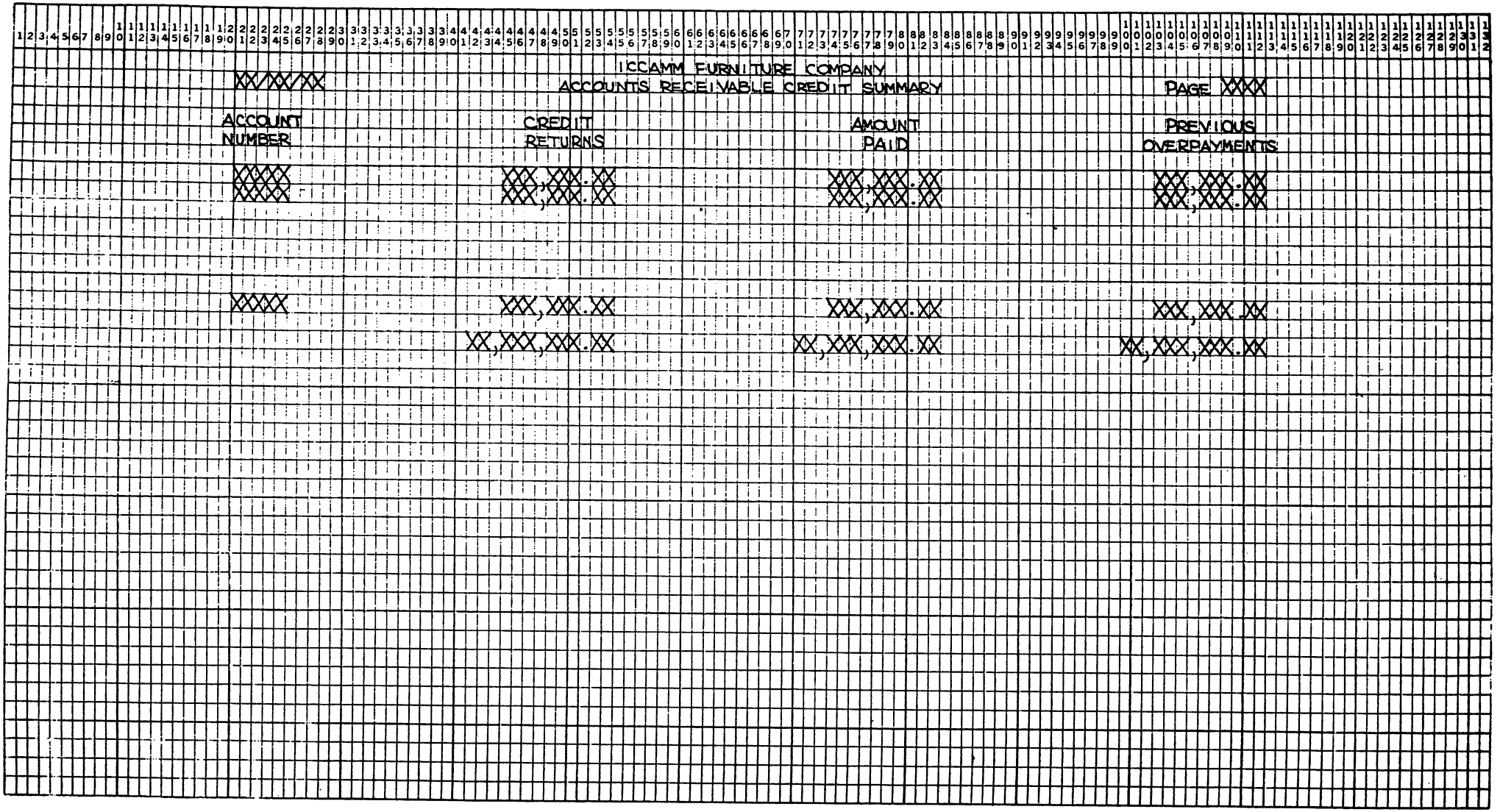
* 11-Overpunch if over-payment amount

CASH RECEIPT RECORD	USAGE: OUTPUT
1. Customer account number	1 - 5
2. Invoice number	6 - 10
3. Blank	11 - 30
4. Date paid	31 - 36
5. Amount paid	37 - 42 *
6. Blank	43 - 79
7. Record code (F)	80 - 80

* 11-Overpunch indicates over-payment

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



PROGRAM DESCRIPTION:

1. This program is designed to produce a customer activity report using a customer activity file.
2. The customer activity file consists of 2 record types
   a) Credit Summary Record
   b) Accounts Receivable Open Record
3. For any customer, there will be 1 summary record and any number of accounts receivable open records.
4. The summary record will contain all credits to be applied to a customer's account and appears before all accounts receivable open records.

   The accounts receivable open records will be all the invoices to which the summary accounts are to be applied.

   The accounts receivable open records are arranged in ascending sequence according to date.

5. The cash receipts register is produced as follows:

   Total credits = Credit return amount + Amount paid + Previous overpayments.

   Total credits are then applied to the amount to be paid on each of the accounts receivable open records until total credits are exhausted or all accounts receivable open records are paid in full.

   If the total credits are exhausted before all the accounts receivable open records are paid in full, the amount to be paid field of the accounts receivable open record is updated and all remaining AR records for this customer are written to an output file.

6. If all accounts receivable open records are paid in full, and total credits are not exhausted, a new cash receipts record must be punched. The amount field must be negative (designating overpayment) and the invoice number is that of the last invoice paid.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____

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ACCOUNTS RECEIVABLE ACTIVITY REPORT

ACCOUNT NUMBER	NAME	INVOICE NUMBER	INVOICE DATE	INVOICE AMOUNT	AMOUNT TO BE PAID	CREDIT AMOUNT	AMOUNT DUE
XXXX	XXXXXXXXXXXXXXX	XXXX	XX/XX/XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX
XXXX	XXXXXXXXXXXXXXX	XXXX	XX/XX/XX	X,XXX.XX	X,XXX.XX	X,XXX.XX	X,XXX.XX
XXXX	XXXXXXXXXXXXXXX	XXXX	XX/XX/XX	X,XXX.XXCR			X,XXX.XXCR
				XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX	XXX,XXX.XX

PROGRAM NUMBER: AR240

APPLICATION: Accounts Receivable Aging Report

RECORD FORMAT(S):

ACCOUNTS RECEIVABLE OPEN RECORD		USAGE: INPUT
1.	Customer account number	1 - 5
2.	Invoice number	6 - 10
3.	Salesman number	11 - 12
4.	Customer name	13 - 30
5.	Invoice date	31 - 36
6.	A/R invoice amount	37 - 42 *
7.	Blank	43 - 48
8.	Amount to be paid	49 - 54
9.	Blank	55 - 79
10.	Record code (9)	80 - 80

* Negative (11 overpunch) if overpayment amount

PROGRAM DESCRIPTION:

1. This program is designed to produce an aging report of all overdue accounts receivable.
2. The process of aging accounts receivable involves classifying each unpaid account as being either current (1-30 days overdue), over 30 days overdue, over 60 days overdue or over 90 days overdue.
3. To determine the status on any unpaid account, the following procedure must be followed.
   a) Convert the current date and the invoice date to elapsed dates.

      Given a 6 digit date in the form MMDDYY

      1. Use MM to look up the following table

MONTH	PRIOR DAYS
1	0
2	31
3	59
4	90
5	120
6	151
7	181
8	212
9	243
10	273
11	304
12	334

2. Elapsed days = Prior day + DD
3. If YY is a leap year (evenly divisible by 4) and MM is greater than or equal to 3, add 1 to elapsed days.
4. Days elapsed prior to current = (YY-1) X 365
5. Elapsed date + Elapsed days prior to current year + Elapsed days of current year.
6. Elapsed due date = Elapsed invoice date + 30
7. Days over due = Elapsed current date - Elapsed due date.

4. If days over due are negative, the account is not due, and the record is bypassed.

   If days overdue are positive, a check must be performed to determine how many days the account is overdue.

5. The written report is to consist of lines that summarize the unpaid accounts of each customer (i.e. one line of print per customer).

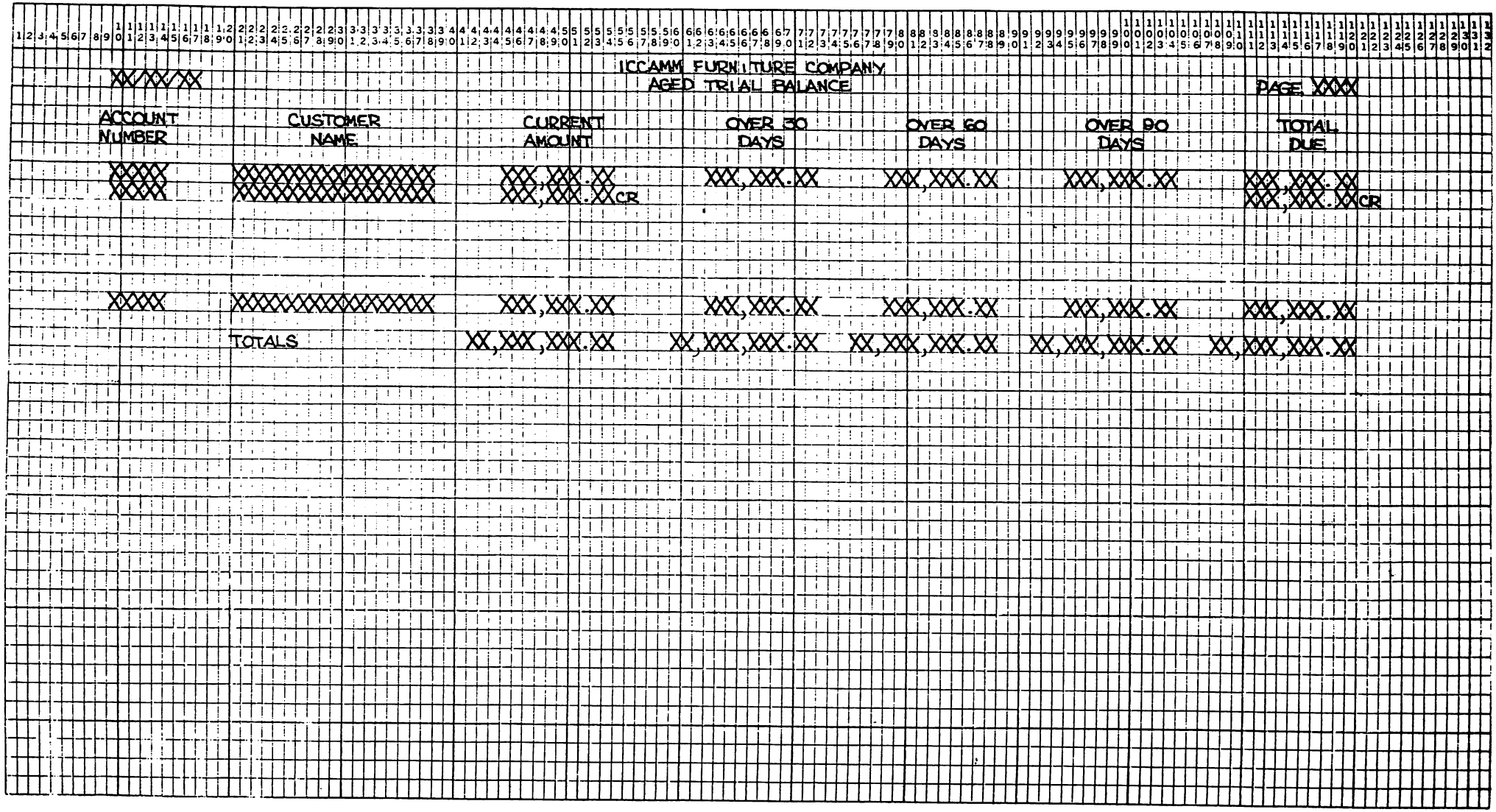
   Total due = Current amount + Amount over 30 days + Amount over 60 days + Amount over 90 days.

6. Grand totals must be kept for current amount, amount over 30 days, amount over 60 days, and amount over 90 days and printed at end of job.

7. Your instructor will tell you what date to use as the current date.

PROG. ID. _____ PROGRAMMER _____

PROGRAM TITLE _____ DATE _____



FORTRAN #1 — 1 point — REQUIRED

The object of this program is to add two Real fields together and convert the answer to Integer form. Each input field and the answers will be printed. Cumulative totals for each field will be printed at end of job.

Input:

Cols.	
1 - 5	Field A
7 - 11	Field B
12	Code of 1 or 2 (2 indicates EOJ)

Output:

	FLD A	FLD B	REAL	INTEGER
	999.99	999.99	9999.99	99999
TOTALS	9999.99	9999.99	99999.99	999999

Programmed by _____

Each student will keypunch the following data.

Cols.	1 - 5	7-11	12
	12345	12345	1
	10001	16789	1
	44444	55555	1
	22222	33333	1
	11111	77777	2

FORTRAN # 2 — 1 point — REQUIRED

A man earns $.01 the first day on a job. Each day his pay is doubled. Print the number of the day and his pay for that day. At the end of 30 days print his total pay.

PENNY A DAY DOUBLED

DAY NO.	PAY
1	.01
2	.02
3	.04
⎛	⎞
TOTAL PAY	xxxxxxxxx.xx

Programmed by _____

FORTRAN #3 — 1 point — REQUIRED

The formula for the Economic Order Quantity of an item is: $EOQ = \sqrt{\frac{2DC}{US}}$, where D is the demand. C is cost of placing order, U is unit-cost and S is the cost of carrying an item in inventory expressed as a % of unit-cost.

Input:

Cols.	
1 - 4	Inventory no.
5 - 14	Description
15 - 17	Demand (999V)
18 - 20	Cost of placing order (9V99)
21 - 23	Unit-Cost (9V99)
24 - 26	Carrying Cost (V999)

Output:

print the:
Inventory Number
Description
EOQ (99999)

Programmed by_____

FORTRAN #4 — 1 point

Write a program to compute the registration fee for a student when:

Registration fee = $22.50 per credit + tuition

Input:

1 - 5	student no.
10	tuition code
15 -16	credits

Tuition codes are as follows:

MEANING	CODE	AMOUNT
Resident undergraduate	1	228.00
Non-resident undergraduate	2	592.00
Resident graduate	3	268.00
Non-resident graduate	5	632.00

Use a computed go to for the tuition code.
EOJ indicated by a student no. of Ø.

Output:

Print the student #, # of credits, type of student (alphameric) and registration fee.

Programmed by _____

FORTRAN #5 1 point REQUIRED

Write a program to convert fahrenheit to centigrade, start at -40 F and go to 212 F. Print the fahrenheit reading and its centigrade equivalent. Carry answer to 4 decimal places.

USE A DO LOOP

Print headings at the top of each page. Use a linecounter for 50 lines per page.

Output:

Fahrenheit to Centigrade Conversion Page xx

Fahrenheit	Centigrade
-xx	-xxx.xxxx

Programmed by _____

Formula for conversion:

$$C = \frac{5}{9} (F-32)$$

FORTRAN #6 -1 point REQUIRED

Input:

The first card will contain the entire table of 40 elements, each element is 2 digits long.

The second card will contain a value in columns 4 & 5 telling how many data cards will follow.

The data cards will follow with a value in columns 7 & 8. This value will be used to search the table read in the first card. If a match is found print:

Value xx matches table position xx

If no match is found, print:

Value xx has no match

At end of job double space and print your name.

You may punch as many data cards as desired (minimum of 6), at least two cards must not match the table elements.

INPUT TABLE

```
COL 1        10        20        30        40        50        60        70
10152025303540455055606570758085909501020304050607080911121314161718192122

232426
        80
```

FORTRAN PROGRAM #7

20% Required

This program has two parts.

The first part is to produce multiplication tables using if statements. Go from 1 x 1 = 1 to 5 x 10 = 50.

The second part is to continue the multiplication tables from 6 x 1 to 10 x 10 = 100 10 x 10 = 100 using do loops.

INPUT

None.

OUTPUT

Multiplication Tables without Do Loop

1 x 1 = 1
1 x 2 = 2
1 x 3 = 3
continue to
1 x 10 = 10
2 x 1 = 2
2 x 2 = 4
continue to
2 x 10 = 20
continue to
5 x 10 = 50

Multiplication Tables With Do Loop

6 x 1 = 6
continue to
10 x 10 = 100

FORTRAN PROGRAM #8 (3 points)

Write a program that will read information from cards and print - Identification #, difference from average measurements for Bust, Waist, and Hip.

Determine your own input format and end of job sentinel.

PUNCH THE FOLLOWING DATA CARDS:

Ident. #	Bust	Waist	Hip
1026	36.	24.	36.
1232	35.5	23.	37.
2129	37.	24.25	36.
3328	37.25	24.5	36.75
3417	39.	25.	37.25
5390	42.	27.	40.

FORTRAN #9 3 points

INPUT

Table contains 20 elements, each 4 digit integer.

PROBLEM

Sort the numbers in the table into ascending sequence internally.

OUTPUT

Print the table before it is sorted, on one line, 2 spaces between each element.

Print the table after the sort, 1 value per line.

At end of job, double space and print your name.

FORTRAN PROGRAM #10 (2 points minimum)

An employer who pays all his employees in cash must know how many bills of each denomination - 1, 5, 10 and 20, - he needs to make up his payroll.

Write a program to read pay records and determine the bills necessary for each employee (ignore coins). Accumulate requirements and at end of job indicate how many of each bill is needed.

INPUT

1 - 5 employees number (99999)
6 - 10 pay (999V99)

OUTPUT

ONES 999
FIVES 999
TENS 999
TWENTIES 999

End of job is indicated by an employee number zero.

If coins are included in the calculations and output, 1 extra point will be added.

FORTRAN # II 3 points

The AJAX COMPANY grants discounts on large sales. The discount schedule is as follows:

SALES	DISCOUNT
0.00 - 500.00	0%
501.00 - 1000.00	1%
1000.00 - 2500.00	2%
over 2500.00	5%

INPUT

1 - 4 item # (9999)
5 - 7 # of units (999)
8 -10 Unit price (9v99)

Write a program to produce a report with headings and page number (15 double spaced lines per page) and list the following data under the correct columns:

item #
discount rate
gross sale price
discount amount
net sales amount

Print totals of amount fields and programmed by line.

Check sequence of item # and print out of sequence message as well as processing that record.

A negative item # indicates end of job.

FORTRAN PROGRAM #12 (1 point)

In 1627 Manhattan Island was sold for $24. If this was placed in a bank at 4% interest compounded annually (first interest paid in 1628) what would the bank balance be after interest is paid this year?

FORMULA:

$$A = P\left(1 + \frac{I}{C}\right)^{NC}$$

where:

A = amount (principal + interest)

N = number of years

C = conversions per year

I = yearly interest

P = principal

FORTRAN #13 (1 point)

Write a program to compute the averages for a class of up to 50 students. The input data consists of 5 scores and a name for each student. A negative value for the first score indicates end of job.

Output should show name, average, and all 5 scores.

INPUT

SCORE #1	1 - 3
SCORE #2	4 - 6
SCORE #3	7 - 9
SCORE #4	10 - 12
SCORE #5	13 - 15
NAME	16 - 35

FORTRAN PROGRAM #14 (2 points)

Write a program that will determine what day of the week a date occurred on or will occur on. Read the day names into a table. Read cards containing the date in Cols. 1-10 in the following format: xx/xx/xxxx.

Formula

$$X = D + 2M + \frac{3(M+1)}{5} + Y + \frac{Y}{4} - \frac{Y}{100} + \frac{Y}{400} + 2$$

Day of week is remainder of $\frac{x}{7}$

Where remainder of Ø is Saturday
1 is Sunday
2 is Monday
3 is Tuesday
4 is Wednesday
5 is Thursday
6 is Friday

In the formula: D is day
M is month
Y is year

January and February are to be considered the 13th and 14th months of the previous year.

Do the problem in integer mode.

OUTPUT

The date xx/xx/xxxx falls on xxxxxxxxx.

End of job is indicated by a month of 99.

FORTRAN # 15 1 point

Read cards containing one real value with no decimal places in cols. 1 - 4. The program should total the values and print the total, the # of cards, the mean and the standard deviation.

$$\text{MEAN} = \frac{\text{SUM OF VALUES READ}}{\text{NUMBER OF VALUES}}$$

$$\text{STANDARD DEVIATION} = \sqrt{\frac{\text{SUM OF SQUARES OF VALUES} - \frac{(\text{SUM OF VALUES})^2}{\text{NUMBER OF VALUES}}}{\text{NUMBER OF VALUES} - 1}}$$

Value of all 9's indicate end of job and should not be processed.

FORTRAN PROGRAM #16 (6 points minimum)

Write a program that will produce a calendar for any given year.

Read a card that indicates the day of the week on which the year begins, and the year.

A year is leap year if it is evenly divisible by 4 but not by 100, unless it is also divisible by 400.

To acquire additional points for this program:

Calendar for one year per page	=	1 point
Use of four tables	=	2 points
Use of one large table	=	2 points
Use of twelve different tables	=	1 point
No high order zeros in output	=	1 point
Calculate for Jan. 1 (day on which it falls)	=	1 point
Continue to each subsequent month without calculating the first day for each month	=	1 point
Program for making calendar for more than one year	=	1 point
Proper year, month, day headings	=	1 point

Will take into consideration other routines for additional points.

FORTRAN #17 1 point

Speedtrap city has a population of only 200 citizens. It is divided into 2 sections by a major highway which passes through the main business district. The posted speed limit is 70 m.p.h. for the highway but only 30 m.p.h. within the city limits. Electronic timing devices have been installed at each end of the city to detect speeders.

Anyone arrested for exceeding the speed limit has two choices. He may go directly to the police department traffic division and pay a fine of $5.00 for each mile per hour in excess of the posted speed limit (a speed of 30-1/2 m.p.h. would result in a fine of $2.50). His second choice is to wait and appear in traffic court which convenes at 7 p.m. each evening. If he is found guilty, he is fined $3.00 for each mile per hour in excess of the posted limit. If the fine is not paid, he is given a jail sentence.

INPUT

1 - 5 culprit # (99999)
6 - 7 officer # (99)
8 -12 actual speed m.p.h. (999v99)
13 -14 disposition code (99)

DISPOSITION	CODE
paid fine immediately	22
found guilty	24
found not guilty	26
jailed	28

OUTPUT

Print culprit #, disposition and amount of fine paid.

End of job indicated by culprit # 0

USE COMPUTED GO TO

FORTRAN #18 1 point

Write a program for a college controller to compute for one semester:

(a) the tuition due from each student;

(b) the total tuition due from all students.

Tuition due is calculated as follows:

(a) if a student enrolls for 10 credits or less he pays $80.00 per credit;

(b) if a student enrolls for more than 10 credits he pays $800.00.

INPUT:

One card per subject - several per student

1 - 5	student #	(99999)
6 - 9	course #	(9999)
10	credits	(9)

OUTPUT:

One line per student giving:

Student #, total credits, tuition.

Final total of tuition for all students.

Programmed by _____

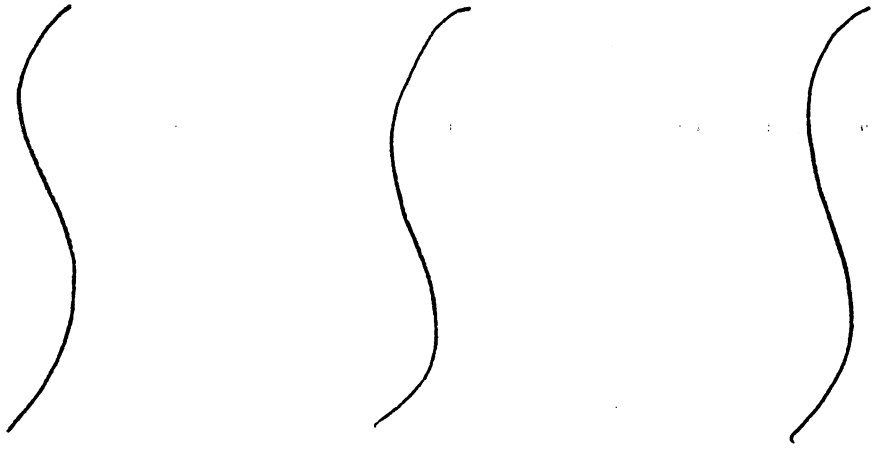
End of job is indicated by student # 0

FORTRAN # 21 10% REQUIRED

Write a program to produce a customer name and address listing with proper headings.

Use your original name and address cards.

NAME STREET ADDRESS CITY AND STATE



PROGRAMMED BY _____

FORTRAN

All assigned Fortran programs follow this outline. There are 21 programs, seven are required and are marked as such. These required programs must be done before any others. The completion of these required programs are equivalent to a 70%. The final Fortran programming grade is determined by adding the point value of each additional program completed to the base percentage of the required programs.

Note: Include the "Programmed by _____" line at end of job, in all programs, even if it is not stated in the write-up.

Date for Fortran Program #3

EOQ

COLS.	1 - 4	5 - 14	15 - 17	18 - 23	21 - 23	24 - 26
	1071	straw bags	500	025	250	005
	2300	hats	250	030	100	010
	2567	key chain	015	015	040	001
	2977	pens	722	020	050	002
	3224	hand bags	235	120	955	008
	3991	blouses	437	025	821	001
	4009	scarves	300	022	199	003

Program #4 Tuition

COLS.	1 - 5	10	15 - 16
	10322	3	08
	10334	1	12
	11392	5	09
	11832	2	09
	11854	3	16
	12586	4	10
	12693	3	14
	21497	1	16
	21624	7	04
	25360	5	05
	25555	9	07
	32824	2	08
	00000	1	00

#10 DENOMINATIONS

COLS.	1 - 5	6 - 10
	23456	95117
	14567	01950
	20350	00525
	14793	47980
	10011	09999
	39572	12125
	73952	18979
	95729	21950
	59372	11111
	82649	00010

#11 DISCOUNTS

COLS.	1 - 4	5 - 7	8 - 10
	1001	365	525
	1005	340	105
	1014	900	900
	1112	021	450
	1054	647	225
	1213	120	999
	2596	999	999
	3001	001	050

Data For 13

COLS.	1 - 3	4 - 6	7 - 8	10-12	11-15	16-35
	97.	95.	87.	94.	98.	Mussman, Charles
	81.	98.	74.	83.	78.	Nakamura, Kim
	92.	97.	94.	95.	91.	Muti, John E.
	96.	99.	99.	90.	97.	Olsen, Ruth
	93.	65.	96.	89.	90.	Perry, June
	93.	90.	92.	91.	96.	Rosen, Barry J.
	92.	99.	87.	83.	91.	Russell, Lauri
	62.	75.	84.	76.	64.	Sanders, Douglas
	91.	85.	96.	99.	82.	Smithfield, Nancy
	95.	95.	91.	94.	83.	Tarrson, Henry N.
	89.	80.	99.	96.	99.	Tashman, Ira
	80.	75.	83.	63.	64.	White, Kathleen
	-1.	0.0	0.0	0.0	0.0	

Data for #15

COLS.	1 - 4
	1234
	4362
	1974
	6321
	1819
	1946
	3249
	4732
	5931
	5592
	2492
	2824

PROGRAM #17 Data

1 - 5	6 - 7	8 - 12	13 - 14
14364	28	035.	24
14365	25	78.	22
14366	57	150.	24
14367	24	30.3	28
14368	47	52.05	22
14369	35	40.0	26
14370	57	40.0	24
00000			

Program #18 Data

COLS.	1 - 5	6 - 9	10
	14917	1107	3
	14917	2405	3
	14917	1195	4
	14917	3309	3
	34981	1107	3
	34981	2405	3
	34981	1195	3
	34981	3309	3
	34981	1150	3
	35006	1405	3
	35006	0216	3
	35006	1250	3
	44895	1150	3
	44895	2405	3
	45009	3309	1
	45009	1405	3
	45009	1150	1
	45009	1250	3
	45009	2405	2